U.S. ARMY CORPS OF ENGINEERS
CIVIL WORKS PROGRAM

CONGRESSIONAL SUBMISSION
FISCAL YEAR 2003

REMAINING ITEMS

Budgetary information will not be released
Outside the Department of the Army until
4 February 2002

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 2003

REMAINING ITEMS

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SUMMARY OF REMAINING ITEMS
LEGISLATIVE PROPOSAL

The Office of Management and Budget has proposed that, beginning in Fiscal Year 2003, each federal agency should contribute the full amount of actuarial retirement costs of its Civil Service Retirement System (CSRS) employees and the costs of post-retirement health benefits for all of its current employees participating in the Federal Employee Health Benefits (FEHB) program. This proposal is based on the premise that each federal agency should budget for all costs associated with its former and present employees.

Costs by appropriation title are shown below.

Appropriation Title	**($Millions)**
General, Investigations	$ 5,000,000
Construction, General	15,000,000
Operation and Maintenance, General	56,000,000
Regulatory Program	7,000,000
Flood Control, Mississippi River and Tributaries	7,000,000
General Expenses	6,000,000
Flood Control and Coastal Emergencies	2,000,000
Formerly Utilized Sites Remedial Action Program (FUSRAP)	1,000,000
Harbor Maintenance Trust Fund	15,000,000
Inland Waterways Trust Fund	1,000,000
Rivers and Harbors Contributions	2,000,000
TOTALS	**$ 117,000,000**

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 2003

SUMMARY OF REMAINING ITEMS

GENERAL INVESTIGATIONS

	FY 2002 Conference	FY 2003 Request	Increase (Decrease)
	$	$	$
1. Surveys	14,400,000	11,350,000	(3,050,000)
c. Special Studies	300,000	500,000	200,000
e. Coordination with Other Federal Agencies, States, and Non-Federal Interests	14,100,000	10,850,000	(3,250,000)
(1) Planning Assistance to States	6,900,000	6,000,000	(900,000)
(2) Other Coordination Programs			
(a) Special Investigations	3,790,000	2,200,000	(1,590,000)
(b) Gulf of Mexico Program	100,000	100,000	0
(c) Chesapeake Bay Program	100,000	100,000	0
(d) Pacific Northwest Forest Case Study	100,000	100,000	0
(e) Interagency Water Resources Development	1,400,000	1,100,000	(300,000)
(f) Interagency and International Support	230,000	150,000	(80,000)
(g) Inventory of Dams	450,000	300,000	(150,000)
(h) National Estuary Program	90,000	100,000	10,000
(i) North American Waterfowl Management Plan	90,000	100,000	10,000
(j) Estuary Habitat Restoration Program	200,000	100,000	(100,000)
(k) Coordination with Other Water Resources Agencies	450,000	300,000	(150,000)
(l) CALFED	100,000	100,000	0
(m) Lake Tahoe, NV	100,000	100,000	0

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 2003

SUMMARY OF REMAINING ITEMS

GENERAL INVESTIGATIONS

	FY 2002 Conference	FY 2003 Request	Increase (Decrease)
	$	$	$
2. Collection and Study of Basic Data	17,050,000	13,250,000	(3,800,000)
a. Flood Plain Management Services	9,500,000	7,500,000	(2,000,000)
c. Other Programs			
(1) Stream Gaging (U.S. Geological Survey)	700,000	500,000	(200,000)
(2) Precipitation Studies (National Weather Service)	400,000	300,000	(100,000)
(3) International Waters Studies	500,000	400,000	(100,000)
(4) Hydrologic Studies	500,000	400,000	(100,000)
(5) Scientific and Technical Information Centers	100,000	100,000	0
(6) Coastal Field Data Collection	3,200,000	2,500,000	(700,000)
(7) Transportation Systems	700,000	500,000	(200,000)
(8) Environmental Data Studies	100,000	100,000	0
(9) Remote Sensing	300,000	200,000	(100,000)
(10) Automated Information Systems Support	650,000	450,000	(200,000)
(11) Flood Damage Data Program	400,000	300,000	(100,000)
3. Research and Development	29,300,000	22,000,000	(7,300,000)
Totals	60,350,000	46,600,000	(13,750,000)

APPROPRIATION TITLE: General Investigations, FY 2003

1. Surveys

c. Special Studies

Study	Total Estimated Federal Cost	Allocation Prior to FY 2002	Allocation FY 2002	Tentative Allocation FY 2003	Additional to Complete After FY 2003
National Shoreline	7,000,000	0	300,000	500,000	6,200,000

SCOPE:

The study is an interagency effort to determine the extent and cause of shoreline erosion on all the coasts of the United States and to assess the economic and environmental impacts of that erosion. The study will analyze the appropriate Federal and non-Federal roles and the advisability of using a systems approach to sediment management for linking the management of all (shore protection, navigation channel dredging, and environmental restoration and preservation) projects in the coastal zone so as to conserve and efficiently manage the flow of sediment within littoral systems.

ACCOMPLISHMENTS:

FY 2002 funding initiated work on this study. The Fiscal Year 2002 efforts include:

1) Updating the June 1996 Report on Shoreline Protection and Beach Erosion Control Study: An Analysis of the U.S. Army Corps of Engineers Shore Protection Program to define the status and performance (both physical and economic) of constructed shore protection projects.

2) Monitoring and reviewing progress in the various Regional Sediment Management Demonstration projects around the nation.

3) Initiate update of shoreline erosion and development patterns presented in 1971 National Shoreline Study and identify data availability and data needs in order to complete the update

4) Conducting an academic forum to identify areas of needed economic research and discuss potential evaluation methodologies, from which we will establish the plan for conducting the Economic Analysis in Fiscal Year 2003.

JUSTIFICATION:

FY 2003 funding would continue work n this study. The Fiscal Year 2003 efforts include:

1. $100,000 to continue and complete the survey of shoreline erosion and development patterns since the completion of the1971 National Shoreline Study.
2. $300,000 to initiate the economic research and analyses decided upon for the different coastal regions of the nation.
3. $50,000 to (1) conduct a technical forum to identify technical guidelines for collecting and analyzing data on the extent and causes of shoreline erosion and accretion, (2) plan work within Corps Divisions and Districts on a regional basis, and (3) coordinate data collection and analysis efforts with the U.S. Geological Survey and the National Ocean Service; and
4. $50,000 to monitor and review progress in the various Regional Sediment Management Demonstration projects around the nation.
5. Section 215 of the Water Resources Development Act of 1999 provides the authority for conducting this study with completion scheduled for 30 Sep 2006.

APPROPRIATION TITLE: General Investigations, FY 2003

1. Surveys

e. Coordination with Other Federal Agencies, States, and Non-Federal Interests

(1) Planning Assistance to States

SCOPE:
This Corps of Engineers program stems from Section 22 of the Water Resources Development Act of 1974, as amended, which authorizes the Secretary of the Army to assist States, local governments, Indian tribes, and other non-Federal entities in the preparation of comprehensive plans for the development, utilization, and conservation of water and related land resources. This assistance is in the form of reconnaissance-level studies which provide information and guidance to help the non-Federal sponsors become more active and effective working partners with the Federal government in resolving water resources problems. The studies are cost-shared on a 50% Federal, 50% non-Federal basis. The program can encompass many types of studies dealing with water resources issues, including environmental conservation/restoration, wetlands evaluation, water supply and demand, water quality, flood damage reduction, coastal zone management, and dam safety.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2003-2007) Program Cost	$40,000,000
Allocation Requested for FY 2003	6,000,000
Balance to Complete Five-Year Program after FY 2003	34,000,000
Allocation for FY 2002	6,900,000
Change in FY 2003 from FY 2002	(900,000)
Average Annual Allocation or FY 1998-2002	5,336,000

JUSTIFICATION:
The Planning Assistance to States program has continued to evolve into a highly effective tool for providing technical and planning assistance to states, local governments, and Indian tribes. These customers recognize the need to develop locally-directed solutions to their water resources problems. Interest from states, regional and local governments, Indian tribes, and other non-Federal public agencies in this highly efficient and effective Program continues to grow. The FY 2003 amount will enable the Corps to provide much needed planning and technical assistance to aid them in a wide variety of water resource efforts, including environmental restoration studies, watershed planning, and flood plain management planning. Currently, there are ongoing studies which require additional funds to complete, and a number of studies yet unfunded which have been identified by states, communities, and Indian Tribes as high priority studies. The FY 2003 request will allow the Corps to continue and complete ongoing studies, and initiate additional high priority studies.

ACCOMPLISHMENTS:
In fiscal year 2001, the Corps of Engineers performed 160 studies for 43 states, the District of Columbia and Puerto Rico, as well as four studies for Federally-recognized Indian tribes. These studies provided technical and planning assistance for a full range of water resources issues. Significant efforts involved studies to assist local communities in restoring urban river environments, and accomplishing wetlands identification and mapping studies. In addition, efforts were undertaken to assist states and local governments in ecosystem restoration, drinking water supply and demand, water quality, and flood damage reduction.

APPROPRIATION TITLE: General Investigations, FY 2003

1. Surveys

e. Coordination with Other Federal Agencies, States, and Non-Federal Interests (Continued)

(2) Other Coordination Programs

Allocation For FY 2002 $7,200,000 Tentative Allocation FY 2003 $4,850,000

(a) The Special Investigations request is $2,200,000. The amount of $200,000 provides for the review of preliminary permit and licenses applications for non-Federal hydroelectric power development either at or affecting Corps water resource projects. The amount of $2,000,000 provides for (1) special investigations and reports of nominal scope prepared pursuant to Congressional and other requests from outside the Corps of Engineers for information relative to projects or activities which have no funds; (2) similar work of detailed scope, as specifically authorized by the Chief of Engineers; and (3) review of reports and environmental impact statements of other agencies. Among the investigations paid for from these funds are reconnaissance investigations of flooding potential and flood damages, drainage, harbor improvements, anchorages, and development of navigation channels.

(b) The Gulf of Mexico Program (GMP) request is $100,000. The GMP is formulating and implementing creative solutions to economic and environmental issues with Gulf-wide and national implications. Hypoxia/nutrient enrichment, Habitat, Public Health (Shellfish) and Nonindigenous Species are the focus issue areas, which are linked to authorized Corps missions in the five-state GMP area. The Hypoxia and Habitat focus areas are now getting more emphasis…through the Clean Water Action Plan and links to a multitude of Corps programs. U.S. Environmental Protection Agency-initiated, the GMP is partnership-driven, blending the programs and resources of Federal, state and local governments, with the resources and commitments of business, industry, citizens groups and academia. The Corps has a full time staff member serving as liaison to the GMP Office (GMPO). That individual's primary duty is to provide the linkage between the Southwestern, Mississippi Valley and South Atlantic Major Subordinate Commands and their districts and the current and evolving activities of the GMP/GMPO. Personnel from several districts and divisions serve on various committees and focus area groups. Secondary duties of the Corps liaison include: 1) coordinating with and supporting the Corps representative on the GMP's Management Committee as well as the DOD representative serving on the GMP's Policy Review Board; 2) functioning as the Corps' alternate Management Committee representative; 3) functioning as a GMPO Interagency Management Team Member; 4) mentoring the GMPO Habitat Focus Team; and, 5) serving as a member of the GMPO Hypoxia Focus Team. The Corps liaison also serves as the Corps' functional and program link to the Coastal America-Gulf of Mexico Regional Implementation Team (RIT). The requested funds will ensure the full participation of the Corps in implementation of GMP-formulated initiatives.

APPROPRIATION TITLE: General Investigations, FY 2003

1. Surveys

e. Coordination with Other Federal Agencies, States, and Non-Federal Interests

(2) Other Coordination Programs (Continued)

(c) Chesapeake Bay Program. The amount of $100,000 is requested to continue activities initiated under Special Investigations. The Chesapeake Bay Program (CBP) is an interagency program, initiated by the US Environmental Protection Agency (EPA), for the protection and restoration of the bay's natural resources. These natural resources have tremendous environmental and economic significance to the northeast region and to the Nation. Following extensive Corps of Engineers investigations and EPA studies in the 1970's and early 1980's, it became increasingly clear that the Chesapeake Bay as a system was under intense pressure from development and overuse and was undergoing degradation in water quality, living resources and other ecological indicators. With the funds requested, the Baltimore District will continue participation in the CBP Implementation Committee and the Federal Agencies Subcommittee addressing various subjects such as wetlands, submerged aquatic vegetation, and land stewardship. The Baltimore District will accomplish limited work associated with the lead on two initiatives (Anacostia Biennial Workplan and Chesapeake Bay Habitat Restoration) from the Agreement of Federal Agencies on Ecosystem Management in the Chesapeake Bay signed in July 1994 and its successor, the Federal Agencies Chesapeake Ecosystem Unified Plan (FACEUP) signed by the ASA(CW) in 1998, as well as participating in workgroups on other aspects of the agreements. ASA(CW) was a signatory on a Special Tributary Strategy for Federal Lands in the District of Columbia agreement that commits the Corps to develop stormwater pollution prevention and nutrients management plans. Many of these actions affect Corps authorized missions in the Chesapeake Bay. It is very important for the Corps representatives to be active members of the CBP Implementation Committee, the Federal Agencies Subcommittee, the Federal Agencies Subcommittee and other working groups.

(d) The Pacific Northwest Forest Case Study request is $100,000. The Northwest Forest Plan (NFP) is an interagency program, initiated by the White House's Council of Environmental Quality, for ecosystem management of the public lands in the Pacific Northwest within the range of the Northern Spotted Owl. In FY 1999, the Corps of Engineers became an official signatory agency to the NFP Memorandum of Understanding. The NFP institutes an interagency approach for restoring and protecting animal and plant species on public lands and provides for economic assistance to impacted communities. With the funds requested, Portland District will participate in NFP activities as an external representative on a part-time basis. NFP participants are presently concentrating on the development of coordinated Implementation Monitoring and Effectiveness Monitoring Programs while continuing to refine and implement its watershed-scale ecosystem management strategies. Many of these strategies and programs involve, and will benefit from, the Corps authorized missions throughout the western states. The NFP presents the best outreach opportunity for the Corps to expand its involvement with the other agencies of the Federal and State communities to use all of our engineering and environmental capabilities to address many of government's missions.

APPROPRIATION TITLE: General Investigations, FY 2003

1. Surveys

e. Coordination with Other Federal Agencies, States, and Non-Federal Interests

(2) Other Coordination Programs (Continued)

(e) The Interagency Water Resources Development request is $1,100,000. This amount provides $650,000 for Corps of Engineers district activities, not otherwise funded, that require coordination effort with non-Federal interests. These activities include items such as meeting with City, County and State officials to help them solve water resources problems when they have sought advice or to determine whether Corps programs are available and may be used to address the problems. This will also cover costs of meeting with potential study sponsors before studies are budgeted to insure they understand study cost sharing and to obtain an indication of their interest in participating in a future study. It also provides $450,000 for two American Heritage River Navigators who are supported by the US Army Corps of Engineers, based upon Executive Order 13061, dated 11 September 1997. These River Navigators provide direct support to the Community Partners for the New River, which flows through NC, VA and WV; and for the Upper Mississippi River above St. Louis, MO. The navigators assist the individual communities and community partners in accessing a variety of Federal programs to achieve the goals in the river workplans. These workplans are a product of river community partners' locally driven, watershed management approaches. Goals include economic revitalization, environmental restoration, and historic and cultural preservation. Immediate targets in the communities' river workplans include improvements such as land cleanup, alternative agriculture and aquaculture projects, community reutilization, educational outreach, stormwater runoff, downtown and riverfront improvements and preservation of historic features in river communities. The River Navigators provide a conduit and coordination link between the community partners and the various Federal programs that might apply to, and provide funding sources for the individual projects.

(f) The Interagency and International Support request is $150,000 to allow the Corps of Engineers to participate with other Federal agencies and international organizations to address problems of national significance to the United States. The Corps of Engineers has widely recognized expertise and experience in water resources, infrastructure planning and development, and environmental protection and restoration. Frequently, other Federal agencies, particularly the State Department and the Environmental Protection Agency, and international organizations request use of the Corps talents in addressing domestic or international problems of utmost importance to the United States. Often the requesting entity is not able to reimburse all Corps costs, including salaries, but yet the success of the program can be greatly enhanced by employing the talents of the Corps. In many cases the Corps abilities to perform its civil works mission or promote opportunities in the U.S. private sector are also enhanced. In FY 2002, the program funds are being used to support the State Department on Middle East and other global water issues, the World Water Council, the Federal Emergency Management Agency, the Environmental Protection Agency on Brownfields, and other initiatives of national importance. The requested funds will be used to cover Corps salary and travel costs not otherwise available. International activities will be undertaken only after consultation with the State Department.

APPROPRIATION TITLE: General Investigations, FY 2003

1. Surveys

e. Coordination with Other Federal Agencies, States, and Non-Federal Interests

(2) Other Coordination Programs (Continued)

(g) The Inventory of Dams request is $3 00,000. These funds will be used for continued maintenance and publication of the National Dam Inventory. Section 215 of the Water Resources Development Act of 1996 (Public Law 104-303) authorized $500,000 to be appropriated each fiscal year for the maintenance and publication of the National Dam Inventory. The Inventory was initially compiled in 1975 has been periodically updated to reflect construction of new dams, ownership changes, modifications to existing dams, and improvements in the accuracy and completeness of the data. The current update includes over 77,000 dams, and focuses on current technology, integrating computer software into the inventory package to improve the ease of use, accuracy, and accessibility of the data. These funds will be used to implement improved information flow and data quality control processes, to greatly enhance the state of knowledge management for dam safety. The inventory will continue to be improved utilizing rapidly evolving technology including enhanced World Wide Web access, a Geographic Information System (GIS) interface, and integration with other dam safety resources. The importance of continued maintenance and publication of the National Dam Inventory has increased, as the inventory is now required for use by the Director of FEMA and the National Dam Safety Review Board in the allocation of dam safety program assistance funds to the various States in proportion to the number of dams in the state. Inventory data is also included in the biennial report to Congress on the National Dam Safety Program. Additional efforts are also required to ensure data security in response to Homeland Defense activities. The ongoing maintenance and publishing of the Inventory is a coordinated effort involving data from the Federal and non-federal Dam Safety community in cooperation with the Interagency Committee on Dam Safety (ICODS).

(h) The National Estuary Program request is $100,000. These funds will be used to participate with Federal and State agencies in the National Estuary Program (NEP) administered by the Environmental Protection Agency under the Water Quality Act of 1987 (Section 320 of PL 100-4). The NEP is an interagency planning program to develop management plans for nationally significant estuaries designated by the EPA. To date, the following 28 estuaries have been designated under the program: Puget Sound, WA; Delaware Estuary, DE, NJ & PA; and Delaware Inland Bays, DE; New York/New Jersey Harbor, NY-NJ; Sarasota Bay, FL; Santa Monica Bay, CA; San Francisco Bay, CA; Galveston Bay, TX; Albermarle/Pamlico Sound, NC; Buzzards Bay, MA; Narrangansett Bay, RI; and Long Island Sound, CT-NY, NY; Massachusetts Bay, MA; Barataria/Terrebonne Bays, LA; Indian River Lagoon, FL; Casco Bay, ME; Tampa Bay, Fl; San Juan Bay, PR; Corpus Christi Bay, TX; Tillamook Bay, OR; Peconic Bay, NY, Barnegat Bay, NJ; Charlotte Harbor, FL; Lower Columbia River Estuary, OR & WA; Maryland Coastal Bays, MD; Mobile Bay, AL; Morro Bay, CA; and New Hampshire Estuaries, NH. Because of extensive Corps involvement with Federal water resources projects in the nation's estuaries and other responsibilities in waters of the U.S., the Corps has been asked to participate on the management and technical advisory committees of those NEP estuaries being studied. The requested funds would be used to cover costs of Corps field office meeting attendance, field reconnaissance, and data transfer. Because of similar objectives, these funds could be used for similar coordination activities conducted under the Coast America initiative.

APPROPRIATION TITLE: General Investigations, FY 2003

1. Surveys

e. Coordination with Other Federal Agencies, States, and Non-Federal Interests

(2) Other Coordination Programs (Continued)

(i) The North American Waterfowl Management (NAWMP) request is $100,000. These funds will be used to continue cooperation with Federal and State agencies, and non-Federal interests in support of the NAWMP administered by the Department of the Interior, Fish and Wildlife Service. The NAWMP is an international program designed to reverse downward trends in North America's waterfowl populations by protecting and improving waterfowl habitats nationwide, particularly in 34 areas within the United States identified as being critical to meeting NAWMP goals and objectives. Department of the Army support to the NAWMP is set forth in an agreement signed with the Department of the Interior on January 23, 1989. The Corps of Engineers has broad water resources development responsibilities and authorities and has stewardship responsibilities for over seven million acres of water and land. Many Corps of Engineers projects contribute directly or indirectly to the habitat base for the nation's waterfowl, and other wetland species. Current and future Corps of Engineer projects are expected to play an even greater role, particularly during years of low rainfall. Also, the Corps of Engineers has recognized extensive environmental engineering and technical expertise and experience that can contribute greatly toward meeting the NAWMP waterfowl habitat improvement goals and objectives. The requested funds would be used to cover costs of Corps of Engineers field office participation in the field trips, interagency coordination meetings, and information transfer in response to conditions set forth in the agreement between the Department of the Interior and the Department of the Army. Because of similar objectives, these funds could also be used for similar coordination activities conducted under the Coastal America initiative.

(j) The Estuary Habitat Restoration Program request is $100,000. These funds will be used to support the interagency council established in the Estuary Restoration Act of 2000. This act establishes an estuary habitat restoration program under which the Secretary of the Army may carry out estuary habitat restoration projects. It also establishes a Council consisting of representatives of the Under Secretary for Oceans and Atmosphere, Department of Commerce, the Administrator of the Environmental Protection Agency, the Director of the United States Fish and Wildlife Service, the Secretary of Agriculture and the Secretary of the Army. This Council has responsibilities to develop a national strategy for restoration of estuary habitat and soliciting, reviewing, and evaluating project proposals and submitting a list of recommended projects to the Secretary for implementation. The requested funds would be used to aid in the implementation of the national strategy and other activities necessary to support the Council. Among the specific activities might be data collection and evaluation and hosting meetings, and processing project proposals.

APPROPRIATION TITLE: General Investigations, FY 2003

1. Surveys

e. Coordination with Other Federal Agencies, States, and Non-Federal Interests

(2) Other Coordination Programs (Continued)

(k) The Coordination With Other Water Resources Agencies request is $300,000. Cooperation with the Department of Agriculture (USDA) is under the Watershed Protection and Flood Prevention Act of 1954 (Section 5 of PL 566-83), as amended; the Flood Control Act of December 22, 1944 (Section 1 of PL 534-78), as amended; and the National Environmental Policy Act of 1969 (PL 91-190). Executive Order No. 10913, dated 18 January 1961, requires that cognizance be taken of constructed and contemplated upstream and downstream USDA works, and that plans be submitted to the Secretary of the Army for review and comment prior to their transmission to the Congress through the President. As the agency responsible for the flood control features of basin program, the Corps of Engineers must provide the Department of Agriculture with information on proposed Corps projects, including their effect on contemplated watershed programs. The Corps is also required by Section 102 (2)(c) of the National Environmental Policy Act of 1969 to review the environmental impacts that would result from installation of USDA project features. Cooperation with the Bureau of Reclamation of the Department of the Interior includes preparation of estimates of flood control requirements, and benefits, and reservoir operating criteria for storage reservoirs to be constructed with Federal funds, in accordance with Sections 1 and 7 of PL 534-78 and Section 7 of PL 984-84, as amended. Studies made by the Bureau of Reclamation of the flood control features of proposed reclamation projects are submitted to the Corps of Engineers for review and determination of the flood control benefits. The Corps of Engineers uses the data collected by the Bureau but makes an independent evaluation of the project. The report of the Chief of Engineers is used by the Secretary of the Interior in making allocation of project cost to flood control. Corps representation is required for cooperation with Federal and state agencies such as River Basin Compact Commissions; Interstate River Basin Compacts; and Regional Planning Commissions in authorized, but unfunded investigations.

(l) The CALFED request is $100,000, which will be used to continue the coordination efforts in the CALFED Bay Delta process in Fiscal Year 2003. The CALFED Bay-Delta Program is a three-phased solution process for the development of a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system. Phase I, the identification of the range of alternatives, was completed in fall 1996. Phase II was completed 28 Aug 00 with the signing of the Record of Decision defining the programmatic plan. Phase III initiated Sep 00 and is a 7 to 30 year process. As outlined in the ROD, the Corps with the State of California are co-managers of the CALFED Phase III program element, Levee System Integrity, and will provide specific technical and implementation support.

(m) The Lake Tahoe request is $100,000. This funding is required to continue work associated with Lake Tahoe Federal Interagency Partnership. The Corps is a founding member of this partnership established to insure cooperation, support and synergy among Federal department and agencies having principle management or jurisdictional authorities in the Lake Tahoe Basin. Partnership action work toward the preservation of the natural, recreational, ecological and economic resources in the Lake Tahoe Region. FY 2003 activities will include working with the Tahoe Regional Planning Agency to develop opportunities for restoration in the Lake Tahoe Basin and working with local and state agencies, public advisory committees, and staff work to support District, Division and HQ executive level involvement.

APPROPRIATION TITLE: General Investigations, FY 2003

2. Collection and Study of Basic Data

a. Flood Plain Management Services

SCOPE: This Corps of Engineers program stems from Section 206 of the 1960 Flood Control Act (PL 86-645), as amended, which authorizes the Secretary of the Army to compile and disseminate data on floods and flood damage potential and to provide guidance in their use in flood-related planning to State and local agencies. This information and guidance supports planning and implementing actions which reduce the flood hazard through wise use of flood plains. The Flood Plain Management Services Program provides flood hazard information, interpretation, and guidance for sites or short reaches of stream or coast and technical and planning assistance to states, communities and Indian Tribes; develops and disseminates guides and pamphlets to convey the nature of flood hazards and to foster public understanding of the options for dealing with flood hazards; and participates with the Federal Emergency Management Agency and local governments in the conduct of pre-disaster hurricane evacuation and preparedness studies for mobilizing local community responsiveness to natural disasters in high-hazard coastal areas.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2003-07) Program Cost	$50,000,000
Allocation Requested for FY 2003	7,500,000
Balance to Complete Five-Year Program after FY 2003	42,500,000
Allocation For FY 2002	5,985,000
Change in FY 2003 from FY 2002	1,515,000
Average Annual Allocation for FY 1998-02	7,706,000

JUSTIFICATION: The funds requested for FY 2003 are to address the growing number of requests from states, regional and local governments, Indian Tribes, and other non-Federal public agencies. An increase in funds allocation will enable states and local communities to become more involved in the application of flood plain management measures. It will provide them site-specific flood and flood plain data and assistance; assist with efforts to identify flood hazards in smaller communities under growth pressures; facilitate special studies that concentrate on the prevention of future flood damages, giving increased emphasis to the application of non-structural measures; and enable critical pre-disaster hurricane evacuation and preparedness studies for states and counties along the Atlantic and Pacific Oceans, the Gulf of Mexico, and US islands in the Caribbean and Pacific.

ACCOMPLISHMENTS: Responses to requests from Federal and non-Federal agencies, communities, Indian Tribes and individuals for flood-related information, interpretation, and guidance numbered 40,100 during 2001 and involved property valued at $5.9 billion. The Corps participated in pre-disaster hurricane evacuation and preparedness studies for high-hazard areas in Louisiana, Massachusetts, Florida, Connecticut, North Carolina, South Carolina, New York, Puerto Rico, New Hampshire, Delaware, Maryland, Virginia, Georgia, Alabama, Mississippi, Hawaii, Guam, Samoa, and the Commonwealth of the Northern Mariana Islands; provided support for updating and improving mathematical models of flood plain hydrology and hydraulics; developed training programs in flood plain hydrology and hydraulics; and prepared flood-proofing studies.

APPROPRIATION TITLE: General Investigations, FY 2003

2. Collection and Study of Basic Data

c. Other programs

(1) Stream Gaging (U.S. Geological Survey)

SCOPE: The Corps of Engineers cooperates with the U.S. Geological Survey in this effort, and contributes funds for all or part of the cost of the operation and maintenance of about 2,520 stations that are of special importance to the Corps mission. The Corps established this continuing, cooperative program in March 1928, so that streamflow data would be available to meet special needs concerning the Corps water resources responsibilities.

SUMMARIZED FINANCIAL DATA:

Estimated five-year (FY 2003-2007) Program Cost	$4,800,000
Allocation Requested for FY 2003	500,000
Balance to Complete five-year Program after FY 2003	$4,300,000
Allocation for FY 2002	600,000
Change in FY 2003 from FY 2002	(100,000)
Average Annual Allocation for FY 1998-2002	630,000

JUSTIFICATION: The Corps of Engineers makes extensive use of streamflow records in the planning, design, construction, and operation of water resources projects. The Basic network of stream gaging stations operated by the Geological Survey under its normal functions without support from the Corps is inadequate to meet all the special needs of the Corps water resource development responsibilities. Accordingly, a cooperative program was established under which funds are transferred to the Survey to cover, partially, the cost of operating specific stations. In the optimum development and management of water resources, it is essential that continuous records of streamflow be maintained at specific sites over a long period of years to provide a reliable measure of water resources available for various uses. This budget item covers only the non-project portion of the cooperative program. To continue the operation of stations of special interest to the Corps, an estimated total of $17,300,000 will be required by the U.S. Geological Survey during FY 2003, exclusive of funds received from other cooperative sources. The operation and maintenance cost of these stations will be financed from three sources, as follows: (1) $560,000 appropriated directly to the U.S. Geological Survey for special Corps stations; (2) $500,000 from this budget item for stations not directly attributed to the Corps projects; and (3) $16,040,000 from Corps funds budgeted elsewhere for authorized projects and studies. The basic program will remain at the same level as in previous years.

ACCOMPLISHMENTS: Records for the streamflow stations supported by transfer of funds are not only used by the Corps, but 100 percent of the data are used by the National Weather Service as the basis for its public flood forecasts. In addition, the data are published on the Internet and in a regular series of reports by the Geological Survey and provide valuable information for other Federal and state agencies and the public.

COORDINATION: This program is fully coordinated with the U.S. Geological Survey. Costs for conducting the work are compiled by representatives of the Survey to identify a basis for the transfer of funds to that agency.

APPROPRIATION TITLE: General Investigations, FY 2003

2. Collection and Study of Basic Data

c. Other Programs

(2) Precipitation Studies (National Weather Service)

SCOPE:

This is the Hydrometeorological Studies Program conducted for the Corps of Engineers by the National Weather Service (NWS). The NWS performs analyses of storm rainfall and other meteorological data required to develop hydrologic criteria for use by the Corps in planning, design and water control management of flood control and water resources development projects, and in floodplain management studies. The Corps transfers funds to the NWS to pay for the work.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY2003-2007) Program Cost	$ 2,500,000
Allocation Requested for FY 2003	300,000
Balance to Complete Five-Year Program after FY 2003	2,200,000
Allocation for FY2002	300,000
Change in FY 2003 from FY2002	0
Average Annual Allocation for FY 1998-2002	320,000

JUSTIFICATION:

The scientific services provided by the National Weather Service under this program consist of : (1)review of the meteorological aspects of storm data compiled under the Hydrologic Studies Program conducted by the Corps; (2) development of probable maximum precipitation (PMP) estimates and occurrence probability of storms for large regions and for specific river basins; (3) precipitation depth-duration-frequency estimates for regions and the nation; (4) development of meteorological parameters pertaining to hurricanes, northeasters and other wind phenomena; and (5) other studies necessary to accomplish the Corps mission. Funds in the amount of $300,000 will be required in FY 2003 to continue the program at a level consistent with Corps needs. The entire cost of the Corps hydrometeorological studies program is funded under this budget item.

APPROPRIATION TITLE: General Investigations, FY 2003

2. Collection and Study of Basic Data

c. Other Programs

(2) Precipitation Studies (National Weather Service) (Continued)

ACCOMPLISHMENTS:

A study of precipitation frequency for the semi-arid southwestern U.S., which began in FY 1991, was completed and published as the first volume of NOAA Atlas 14. This is a major accomplishment and sets the standard for similar studies of the rest of the U.S. that will commence in time. Work on the precipitation-frequency study for the Hawaiian Islands resumed after several years of postponement and delay. Work on the precipitation-frequency study of Ohio River basin states continued to make major progress during FY 2002. Work commenced on the review of PMP for the Cougar Lakes project.

FISCAL YEAR 2003:

The major efforts in FY 2003 will be to continue work on revision of the Precipitation-Frequency Atlas for the United States (NOAA Atlas 14), with emphasis given to: (a) completing the Ohio River basin states region study; (b) continuing the study of the Hawaiian Islands; (c) initiating the New England/N.Y. region study. NWS will remain capability to do site specific work for PMP analyses for Corps projects throughout the United States. The Corps will continue to support NWS' effort to build computer capability for automated processing of storm data, in order to shorten the time of analysis and reduce cost.

COORDINATION:

This program is fully coordinated with the National Weather Service, Office of Hydrology. For the precipitation-frequency study of the Ohio River basin region, the Corps assisted the NWS obtain significant cost-sharing from the states in the region and will attempt to do the same for the New England states region.

APPROPRIATION TITLE: General Investigations, FY 2003

2. Collection and Study of Basic Data

c. Other Programs

(3) International Waters Studies

SCOPE:

The Boundary Waters Treaty of 1909, the Niagara River Treaty of 1950, the Columbia River Treaty of 1961, and other less formal agreements between the Governments of the United States and Canada are concerned with the regulation, control, and use of boundary waters. Under the Boundary Waters Treaty of 1909, the International Joint Commission (IJC) was established and empowered to establish local boards, which conduct investigations and assure adherence to orders of approval pertaining to use of boundary waters issued by the Commission. Corps of Engineers representatives serve on and chair the U.S. Sections of the following IJC Boards: Saint Croix River, Champlain-Richelieu, Lake Champlain, St. Lawrence River, Niagara, Lake Superior, Lake of the Woods, Rainy Lake, Souris-Red Rivers Engineering, Souris River Control, Kootenay Lake, and Osoyoos Lake. Under separate treaties, Corps representatives serve on and chair the U.S. Sections of the Columbia River Treaty Permanent Engineering Board, the Columbia River Treaty Entities, the International Niagara Committee, and the International Lake Memphremagog Board. These Boards and Committees hold joint meetings, review report drafts and correspondence, make field inspections, obtain, collect, and analyze hydrologic and hydraulic data, and report their findings to the establishing parties. The degree of study activity varies depending upon the requirements of the Commission or Treaty under which they were established. These efforts assure better control, use, and orderly development of the jointly controlled water resources, and are of importance in attempting to meet water demands resulting from an expanding economy along the United States-Canadian border. Studies are closely related to the Corps of Engineers' Civil Works program and are summarized in the Assistant Secretary of the Army for Civil Works' Annual Report.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2002-06) Program Cost	$2,500,000
Allocation Requested for FY 2003	400,000
Balance to Complete Five-Year Program after FY 2003	1,600,000
Allocation for FY 2002	500,000
Change in FY 2003 from FY 2002	(100,000)
Average Annual allocations for FY 1998-2002	546,000

JUSTIFICATION:

The amount requested for FY 2003 will fund Corps of Engineers participation in assisting the U.S. Government meet its obligations under provisions of boundary water treaties and other international agreements between the United States and Canada. CELRD provides support for implementation of the Niagara Treaty of 1950 that governs the split of Niagara River Waters between the U. S. and Canada, and between the uses of the waters.

APPROPRIATION TITLE: General Investigations, FY 2003

2. Collection and Study of Basic Data

c. Other Programs

(3) International Waters Studies (continued)

Northwestern Division engages in activities associated with implementation of the Columbia River Treaty and the Kootenay Lake and Osoyoos Lake Boards of Control. CENWD, together with Bonneville Power Administration and British Columbia Hydro annually develop the Assured Operating Plan and the Detailed Operating Plan for the treaty storage projects. Funds also are used to support the work of the Columbia River Treaty Permanent Engineering Board, including publication of its annual report to the Governments. North Atlantic Division is engaged in support of the Saint Croix River Board of Control and the Gulf of Maine Council on the Marine Environment. Work in the Saint Croix R. Basin involves retrieval and analysis of water data to assure compliance with IJC rules and annual inspection of dams and fish passage facilities.

ACCOMPLISHMENTS:

The Corps Division and District commanders and their staffs met all of their many and diverse responsibilities in representing the United States on the previously listed IJC Boards of Control and Treaty entities, boards and committees. The IJC-sponsored special flood damage reduction study of the Red River Basin was closed without completing the full scope of the planned work because of lack of funds from the United States. CENWD completed the Libby Coordination Agreement, and implemented all Columbia River Treaty required Assured Operating Plans (AOP) and Determinations of Downstream Power Benefits (DDPB).

FISCAL YEAR 2002:

The Corps will continue to carry out its multiple responsibilities to the various IJC Boards of Control and to the several Treaty entities, boards and committees. During FY 2002, additional flow data will be obtained and used to update the rating curve used to verify compliance with Niagara Treaty requirements. In addition, pursuant to the October 1999 Plan of Study for Lake Ontario regulation improvements, the IJC established the Lake Ontario-St. Lawrence River Study Board. Investigations are continuing as the second year of a 5-year effort. A Plan of Study for evaluating the Lake Superior regulation criteria outflows will be developed, and, if approved by Governments, studies may commence in FY 2002. A basin-wide hydrologic and regulation model will be implemented. Special studies related to international impacts of evaluation of endangered species compliance related to Columbia River Treaty projects will be continued by CENWD. CENAD will continue normal work in support of the Saint Croix Board of Control and the Gulf of Maine Council on the Marine Environment. Discussions are ongoing with the IJC on expansion of the IJC's mission to include environmental objectives, as described in the report entitled "The IJC and the 21st Century". The Corps will be supporting the IJC as it executes the reference from the governments regarding investigating the feasibility of establishing a demonstration watershed board and its implementation of the reference on diversion, consumption and transfer of international waters.

APPROPRIATION TITLE: General Investigations, FY 2003

2. Collection and Study of Basic Data

c. Other Programs

(4) Hydrologic Studies

SCOPE: The scope of activities under this item is determined annually based on the requests from USACE Commands and Laboratories to meet high-priority needs. These items are not covered under regular Civil Works GI and O&M funding programs. Major activities to be undertaken in the program generally include the collection of basic hydrologic data and the studies of these data for major storm events or certain special hydrologic processes. The information to be derived from this program will improve hydrologic engineering techniques for the planning, design, construction, and operation of water resources projects. The program consists of four sub-items: Storm Studies, General Hydrologic Studies, Sedimentation Studies, and Stream Flow and Rainfall Data.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2003-2007) Program Cost	$ 3,800,000
Allocation Requested for FY 2003	400,000
Balance to Complete Five-Year Program after FY 2003	3,400,000
Allocation for FY 2002	500,000
Change in FY 2003 from FY 2002	(100,000)
Average Annual Allocation for FY 1998-2002	509,200

JUSTIFICATION:

1. Storm Studies: The Storm Studies Program is a continuing investigation of major storms for the purpose of accumulating comprehensive rainfall data. These data are used to refine the regional hydrometeorological information throughout the nation. The up-to-date hydrometeorological information is essential for design of new projects as well as for safety assessment of existing projects. We have substantial need for hydrologic data for initiation and completion of water resources studies. These data are required in the evaluation of flood-producing potentials of river basins, and constitute the major portion of the basic data used in probable maximum precipitation determinations. Funds in the amount of $135,000 will be required in FY 2003 to work on several storm studies. Study of the storm occurred in November 2001 over the Big Island of Hawaii will be initiated. Studies of storms occurred in July 1991 west of St. Louis County, River des Teres, MO; July 1990 at eastern NE and western IA; June 1991 at Elkhorn River Basin, NE and storm study of the Jan 1982 event in San Francisco Bay area will be continued. During 1997, wide-spread floodings occurred across the nation. Therefore storm studies are also planned for the 1997 events occurred over the San Joaquin, CA and the Red River of the North (SD & ND) basins

2. Collection and Study of Basic Data

c. Other Programs

(4) Hydrologic Studies (Continued)

2. General Hydrologic Studies: Studies under this sub-item include needed improvement in the analysis of rainfall-runoff relationships, flood frequency, snowmelt studies, hydrograph development and routing at selected watersheds, model calibrations in urban areas, analyses of past floods, methods for the hydraulic analysis of non-gaged streams, and other studies of related hydrologic nature. Studies of new techniques to improve the accuracy of hydrologic modeling require additional resources. New radar applications in rainfall-runoff forecast is an immediate concern. Funds in the amount of $135,000 in FY 2003 will be required to continue this sub-item at a level to insure proper and orderly progress. In New England region, a continuing comprehensive hydrologic analysis of 1987 flood event will provide resource data for future potential planning and design studies, as well as reservoir operation. An effort which began in FY 1985 on re-examination of water yield and potential reallocation of storage space in Corps reservoirs is continuing. A study on rainfall induced by Hurricane Floyd during September 1999 over the Neuse and Tar basins in North Carolina will begin in FY 2003.

3. Sedimentation Studies: The program is a continuing effort in which funds are used for conducting non-project sedimentation studies, and for the Corps share of an interagency sediment investigation program. The sedimentation studies include: promoting and supporting the standardization and development of equipment, criteria and methodology for the collection, analysis of suspended and bedload sediment characteristics of natural streams; and laboratory studies. The Hydraulics Laboratory, Waterways Experiment Station is sponsored by the Federal Interagency Sedimentation Committee (members from 18 agencies) and constitutes the major work effort under this sub-item. Funds in the amount of $70,000 in FY 2003 will be required to support the Federal Interagency Sedimentation Project (FSIP) located at the Waterways Experiment Station.

4. Streamflow and Rainfall Data: This is a continuing program in which funds are used for installation and operation of hydrometeorology gages of non-project nature that are needed by the Corps in addition to the stations in the cooperative programs conducted by the U.S. Geological Survey and the National Weather Service for the Corps. Funds are needed to continue support for the basic data collection in the Sleepers River Watershed in Vermont. Additionally, gages are needed to observe historical high water marks for validation of hydrologic models. An amount of $60,000 in FY 2003 is required to continue the establishment and operation of these special-purpose gages, and to determine historical flooding in urban sites.

APPROPRIATION TITLE: General Investigations, FY 2003

2. Collection and Study of Basic Data

c. Other Programs

(4) Hydrologic Studies (Continued)

ACCOMPLISHMENTS:

1. Storm Studies: This continuing program was organized in 1939 for the purpose of investigating rainfall from major storms of record throughout the entire United States. The selected storms are analyzed for frequency, associated runoff and precipitation data. These efforts are coordinated with the National Weather Services (NWS) Hydrometeorological Branch and the resulting data from these studies are used in design of water resources project throughout the country. During the period, Corps offices have gathered data on other major storms, reviewed the scope and interim results of ongoing studies by NWS on development of standard project and probable maximum storms at various basins throughout the United States and territories. Storm studies are being utilized in probable maximum precipitation studies in coordination with NWS for northwest, California and southwest United States.

2. General Hydrologic Studies: Examples of some of the more important studies accomplished under this program are: determination of rainfall-runoff relationship in urban areas; general hydraulic model calibration; snow cover surveys; and adaptation of hydrologic programs to CADD equipment. Work continued on the regional frequency studies for three major river basins in the North Central States. The long-term foothill streams of Colorado flash flooding project progressed as scheduled. Particularly encouraging to date are the data developed for rainfall-runoff on small watersheds and evaluation of flood potential in connection with design of structure located in the flood basin. Works continue on the water yield study.

3. Sedimentation Studies: All of the funds allotted to this sub-item is to assist in financing the Corps share of the cooperative Interagency Sedimentation Project at the Hydraulics Laboratory, Waterways Experiment Station.

4. Streamflow and Rainfall Data: Stations funded under this sub-item are generally established and operated several years prior to anticipated authorization for project-type activities, in order to provide a background of observed data on which to base the planning and design of projects. Progress continues at these gage sites to collect hydrometeorological data in flood prone areas to document historical flood and calibration of hydrologic models.

APPROPRIATION TITLE: General Investigations, FY 2003

2. Collection and Study of Basic Data

c. Other Programs

(4) Hydrologic Studies (Continued)

FISCAL YEAR 2003: The appropriation requested for FY 2003 is required to continue the Hydrologic Studies Program at the level required to meet high-priority needs.

ITEMS	FY 2002	FY2003
1. Storm Studies	$ 137,000	$ 135,000
2. General Hydrologic Studies	145,000	135,000
3. Sedimentation Studies	77,000	70,000
4. Streamflow and Rainfall Data	49,000	60,000
TOTAL	$ 500,000	400,000

COORDINATION: The storm studies are prepared by USACE commands and are reviewed by the National Weather Services in the preparation of probable maximum precipitation estimates for the Corps. The Interagency Sedimentation Project is conducted cooperatively, and jointly funded, by eight Federal agencies. Information concerning streamflow and rainfall data collection by the Corps under this activity is made available to the U.S. Geological Survey and the National Weather Service.

APPROPRIATION TITLE: General Investigations, FY 2003

2. Collection and Study of Basic Data

c. Other Programs

(5) Scientific and Technical Information Centers

SCOPE:

Five information analysis centers (soil mechanics, concrete technology, coastal engineering, hydraulic engineering, and cold regions engineering) located at the U. S. Army Engineer Research and Development Center's Geotechnical and Structures Laboratory, Coastal and Hydraulics Laboratory, and Cold Regions Research and Engineering Laboratory, respectively, provide the major interface between the Corps of Engineers and the public and private sectors to gather and disseminate information as required by PL 99-802, Federal Technology Transfer Act of 1986. The function of each center is to acquire, examine, evaluate, summarize, and disseminate newly published scientific and technical information generated within the Corp of Engineers and other activities in the U.S. and abroad.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2003-2007) Program Cost	$ 600,000	
Allocation Requested for FY 2003	100,000	
Balance to Complete Five-Year Program After FY 2003	500,000	
Allocation for FY 2002	63,000	
Change in FY 2003 from FY 2002		37,000

JUSTIFICATION:

Public Law 99-802, Federal Technology Transfer Act of 1986, requires technology transfer from Federal agencies to the private sector. In addition, both the Department of Defense and the Department of the Army have objectives of supporting the information needs of engineers and scientists and eliminating unnecessary duplication of R&D. The specified information centers, supported by their host laboratories, critically evaluate and summarize the technical validity and merits of published and unpublished research and technical publications on design, construction, or other technology utilization. User communities have been well established and distribution lists for technology transfer are continuously updated. Electronic media including the World Wide Web are used where appropriate. The effectiveness of activities and services is evaluated on a continuing basis, and technology transfer products and methodology are revised when appropriate.

APPROPRIATION TITLE: General Investigations, FY 2003

2. Collection and Study of Basic Data

c. Other Programs

(5) Scientific and Technical Information Centers (Continued)

ACTIVITY IN FY 2003:

The Corps of Engineers has moved onto the information highway and is making major use of the World Wide Web (WWW) for technology transfer. The WWW is widely accessible by both the public and private sectors and provides rapid transfer, at significant cost savings, of technical data, bulletins, general information on ongoing studies, technical notes, and ultimately technical reports. The information centers and their host laboratories are now maintaining WWW homepages with links to other related homepages. Recent establishment of internal networks, as well as a Corps-wide network, along with connection to the Internet, have provided a major leap forward in communications at a significant reduction in transmittal costs. Several thousand technical inquiries are received annually, with the Internet playing an increasingly major role. Inquiries are received from Federal, state, and local government activities, universities, private sector engineers and scientists, and concerned citizens.

Technical Field	Subjects
Coastal Engineering	Wave data and predictions, shore processes, inlet dynamics, navigation channels and structures, harbors, and coastal construction
Cold Regions Engineering	Ice engineering, meteorology, climatology, geophysics, geology, remote sensing, environmental engineering
Concrete Technology	Cements, concrete, aggregates, concrete construction, concrete repair and rehabilitation technology
Hydraulic Engineering	Hydraulic, hydrologic, water resources, and sedimentation of streams, rivers, waterways, reservoirs and natural impoundments; estuaries, inland and coastal groundwater; fishery systems; and hydraulic structures of all types

APPROPRIATION TITLE: General Investigations, FY 2003

2. Collection and Study of Basic Data

c. Other Programs

(5) Scientific and Technical Information Centers (Continued)

Technical Field	Subjects
Soil Mechanics	Embankment and foundation engineering, earthquake engineering, engineering geology and rock mechanics

Information Analysis Centers	FY 2003
Coastal Engineering	$ 20,000
Cold Regions Engineering	20,000
Concrete Technology	20,000
Hydraulic Engineering	20,000
Soil Mechanics	20,000
	$100,000

COORDINATION:

The Information Analysis Centers and their host Laboratories distribute reports, technical notes, computer programs, GIS data, abstracts, information bulletins, and other scientific and technical information to the Defense Technical Information Center (DTIC), Corps libraries, depository libraries, and identified user communities to ensure wide circulation and availability. WWW homepages are maintained on the Internet for public accessibility. Reports are also available for searching through the Corps Library Program's computer system LS/2000. DTIC publicizes reports through its own DOD database and forwards the reports to the National Technical Information Service (NTIS), Department of Commerce. NTIS places reports into a compendia of Selected Water Resources Abstracts and an annual cumulative edition, with conveniently indexed and cross referenced identification of what is being or has been done in water resources research and related scientific and engineering fields by whom, where, and when.

APPROPRIATION TITLE: General Investigations, FY 2003

2. Collection and Study of Basic Data

c. Other Programs

(6) Coastal Field Data Collection

SCOPE:

The nationwide program is designed to systematically measure, analyze and assemble information required to accomplish the Corps mission in coastal navigation, storm damage reduction, and evaluation of harbor entrance impacts on adjacent shores. The data directly support project comprehensive regional and local planning, research, design, construction, operation, and maintenance. Cost-effective mission accomplishment requires long-term and systems/regional data that encompasses winds, waves, currents, water levels, and bottom configuration, sediment characteristics, and geomorphologic data. In particular, wave data are the key design parameter for coastal projects. For example, a 20% error in wave height leads to over a 70% difference in stone size for navigation structures. If the error in wave height leads to over specifying stone size, the construction costs are much higher than necessary. If stone size is too small, structures fail or have unnecessary life-cycle repair costs. With 800 navigation projects to maintain and repair (25% are more than 50-years old), cost attributable to having no data or poor data would be significant. These data are either unavailable in existing archives, are of uncertain or poor quality, or are too sparsely distributed temporally and/or spatially to have statistical value. The required data are regional in nature and not properly chargeable to authorized projects. Sufficient time is not available prior to or during project preauthorization planning studies to accumulate the years of base-line data necessary for adequate assessment of technical, economic, and environmental feasibility. Acquisition of the information will be accomplished through the concurrent accumulation of complementary items, each of which is unique and contributes certain critically needed data. The program is organized into five sub-items: (1) Wave Information Studies; (2) Wave Gauging; (3) Topographic and Bathymetric Nearshore Data; (4) Field Research Facility Measurements; and (5) Information and Program Management.

SUMMARIZED FINANCIAL DATA:

Estimated Five Year (FY 2003-2007) Program Cost	$14,000,000
Allocation Requested for FY 2003	2,500,000
Balance to Complete Five-Year Program after FY 2003	11,500,000
Allocation for FY 2002	3,200,000
Change in FY 2003 from FY 2002	(700,000)
Average Annual Allocation for FY 1996-2002	$1,838,000

APPROPRIATION TITLE: General Investigations, FY 2003

2. Collection and Study of Basic Data

c. Other Programs

(6) Coastal Field Data Collection (Continued)

JUSTIFICATION:

1. Wave Information Studies. Numerical simulation techniques are used to estimate wave environments, including direction, from weather information in areas where adequate data are not available. Most wave gage data are non-directional; hindcast data provides 30-40 years directional wave statistics. This information is paramount to the functional/structural design and economic evaluation of coastal navigation projects. Additionally, detailed wind information is produced. These data are made available to Corps of Engineers Districts (in addition to reports) through a computerized coastal engineering data retrieval system, from which most statistical representations desired of waves and water levels can be obtained. Funding required is $390,000.

2. Wave Gauging. High-quality wave data are needed to predict harbor shoaling, harbor oscillation, jetty stabilization, etc. These data are imperative for operational guidance of dredging, navigation, maintenance, etc. Upon acquisition, these data are analyzed and made available to Corps engineers, planners, and managers via the Internet. These efforts are coordinated with the National Oceanic and Atmospheric Administration (NOAA), the Federal Emergency Management Administration (FEMA), and the data are made available to NOAA and the public. Cooperative agreements for the collection of wave data have been executed with the states of California, Alaska, Florida, Hawaii, Washington, Texas, and Virginia. These agreements provide a mechanism for other Federal, state, and local agencies to cooperate in the collection of coastal data. Funds in the amount of $1,000,000 will be needed to continue cooperative wave gauging with States and to operate and maintain wave gauging networks on a limited portion of the U.S. coasts.

3. Topographic and Bathymetric Nearshore Data. A historical record of past episodic events provides the necessary basis for predicting the results of future occurrences. The objective of this effort is to provide the quantity and quality of timely data required to more accurately document characteristics and effects of episodic coastal events such as extratropical storms, hurricanes, tsunamis, etc. Measurements of storm-induced beach, dune, and nearshore bottom changes are necessary to quantify erosion and storm effects on navigation projects. Storm shoaled channels will limit vessel access and changed bathymetry will change the wave climate at the entrance channel affecting the extent of pitch, roll, and heave a ship will experience. Nearshore berm disposal areas are also significantly affected by large episodic storm events. Funds in the amount of $100,000 are needed to support data collection in this area.

2. Collection and Study of Basic Data

c. Other Programs

(6) Coastal Field Data Collection (Continued)

4. Field Research Facility Measurements. Critical to measuring, analyzing and providing useful coastal data products for the CE Districts is the collection of intensive, long-term, high-resolution data for improving project design and reducing costs. The Field Research Facility at Duck, North Carolina is a unique real-world experimental facility that incorporates high-resolution instruments with comprehensive suites of environmental sensors to provide wave, current, meteorological, bathymetric, and topographic data. The facility is used to evaluate wave measurement techniques and equipment, test experimental oceanographic instrumentation and sensors, collect high-resolution continual data throughout major storms, conduct large interagency field experiments, such as SandyDuck and Duck94, and collect spatially and temporally intensive long-term base measurements required to understand complex coastal processes. These data are made available via an interactive website to engineers and scientists in the Corps, DOD Laboratories, other agencies, universities, and the private sector for researching coastal processes and for developing and verifying numerical models and coastal engineering tools that predict wave environments and sediment movement affecting coastal projects, navigation safety, dredging quantities and project impacts. They also are crucial for evaluating the characteristic of data products produced by sub-items (1) - (3) and improving their quality and completeness. Funds in the amount of $1,000,000 are required for the base measurement program at the Field Research Facility.

5. Information and Program Management. This task objective is to make coastal data readily available to Corps Districts and Divisions. A standardized database has been developed so that coastal data formats and analysis procedures are compatible throughout the Corps of Engineers. The value of program data and project-related data is maximized through the use of Corps-wide standards, routine updating of available data, utilization of a centralized data library on the World Wide Web and dissemination over the Internet. Principal forms of output are information reports, data resource reports, and computer-based data files. The standardized procedures will help avoid intra-agency duplication, minimize data collection efforts, and identify data deficiencies. Minimum maintenance effort will require $10,000.

ACCOMPLISHMENTS:

The wave information study has resulted in about 40 years of simulated directional wave data for the Atlantic and Pacific coasts and 30 years for the Gulf coast and the U.S. shores of the Great Lakes. Thirty years of wind data for the three coasts have also been produced. Computer models are used each year to add the current year of wind and wave information for all coastlines. Automated wave hindcasts/prediction systems have been developed for Lake Michigan, Atlantic and Pacific Coasts. This information provides the Corps with near real-time data for project use and increases the statistical validity of the database. Nearshore bathymetric data for the U.S. coastlines have been incorporated in the database. A data assimilation technique was developed to improve computer model calculations through statistical incorporation of measured data. The database of measured water levels along the Atlantic and Gulf of Mexico coastlines due to storms was updated through 1995. Joint efforts have been established with the States of California, Texas, Alaska, Florida, Washington, Oregon and Virginia for collection of wave data. Wave data have been acquired from program gages, numerous specific project stations, and from other agencies. Data standards have been implemented for data collection, analysis and quality assurance. Simulated and measured wave, water level and bathymetric data are available through an interactive website on the Internet.

APPROPRIATION TITLE: General Investigations, FY 2003

2. Collection and Study of Basic Data

c. Other Programs

(6) Coastal Field Data Collection (continued)

PROGRAM ITEM	FY 2002	FY 2003
1. Wave Information	335,000	390,000
2. Wave Gauging	815,000	1,000,000
3. Topographic and Bathymetric Nearshore Data	0	100,000
4. Field Research Facility	955,000	1,000,000
5. Information Management	95,000	10,000
6. Scripps Beach Process Study	1,000,000	0
	$3,200,000	$2,500,000

APPROPRIATION TITLE: General Investigations, FY 2003

2. Collection and Study of Basic Data

c. Other Programs (Continued)

(7) Transportation Systems

SCOPE: The Transportation Systems Program supports Corps districts and Headquarters personnel in accomplishing their navigation project planning and evaluation responsibilities through the provision of integral information components. The process of planning improvements to waterway and harbor navigation projects necessitates the consideration of the needs, opportunities, benefits, and costs associated with project improvements within the context of the project specific area as well as within the context of the overall national transportation system. The transportation systems program is managed by CECW-P and is a continuous, on-going effort to ensure the development of sound analytical techniques, tools and methods; the development of deep draft and shallow draft vessel operating and replacement cost data which can be applied by District offices; the provision of timely updates of the world deep draft vessel fleet, commodity, and cargo flow forecasts; the publication of reports documenting the results of research associated with the Transportation System Analysis program; and the provision of technical services and support to District offices and Headquarters personnel. The goals of the Transportation System Program are as follows: (1) to improve the technical quality and accuracy of navigation planning studies as well as provide for consistency in analytical procedures across the wide array of planning conditions encountered by District personnel; (2) to improve the strategic planning of navigation systems improvements; and (3) to reduce the cost of planning and operation of the navigation system. These goals are accomplished by providing District and headquarters analysts with useful and consistent information and analytical tools and procedures, and result in a end product which reflects a responsible and worthwhile investment of government funds.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2002-06) Program Cost	$ 4,800,000
Allocation Requested for FY 2003	$ 500,000
Balance to Complete Five-Year Program after FY 2003	$ 3,600,000
Allocation for FY 2002	$ 700,000
Change in FY 2003 from FY 2002	$ (200,000)
Average Annual Allocation for FY1998-FY2002	$ 646,000

APPROPRIATION TITLE: General Investigations, FY 2003

2. Collection and Study of Basic Data

c. Other Programs

(7) Transportation Systems (Continued)

JUSTIFICATION: The $500,000 requested in FY 2003 for Transportation Systems would be used to update models and analysis used for the planning and evaluation of ports, harbors and inland waterways, and the modernization of planning methods and associated computer models to support District navigation studies nationwide. Funds would be used to continue to develop and provide inland and ocean vessel operating costs used to estimate transportation cost reduction benefits for Corps navigation studies; to continue to develop and provide commodity and fleet forecasts of waterborne traffic for deep and shallow draft navigation projects from industry forecasting experts, and to update deep draft vessel characteristics for use by Corps field planners; to provide rail, barge and truck models for use in estimating origin-destination transportation cost savings by Corps Districts; to complete the update of the *Grain Transportation Cost Model* to apply to evaluation of trade- policy changes to the flow of U.S. agricultural products world-wide; to complete the development of a standardized, cost efficient desktop model to evaluate the benefits of navigation projects; to continue development of the HARBORSYM and NAVSYM models; to provide consulting technical support services to Corps District offices; to continue the development of procedures for performing multiple port analyses to evaluate the trade-offs between development at competing ports within a given market area; to complete the tidal-delay model that would standardize the procedures, thus minimizing the effort and cost for each study needing to evaluate this component.

ACCOMPLISHMENTS: Assuming that all funding is received, the following is a list of expected accomplishments.
Develop, field-test, and systematically update systems analysis models and supporting databases, to improve project-planning efficiency.

Initiate and complete an update of the deep-draft vessel operating costs.
Initiate an update of the shallow-draft vessel operating costs.
Continue modifications to NAVSYM Model to include elasticity research results.
Complete inclusion of world-trade impacts into the Grain Transportation model.
Update the PC-compatible barge, rail and truck transportation cost models.
Initiate development of desktop computer model for navigation analysis.
Complete the desktop tidal delay model.
Initiate multiport procedures guidance.
Developed a “Lessons Learned” document on evaluating elasticity as part of navigation studies.

APPROPRIATION TITLE: General Investigations, FY 2003

2. Collection and Study of Basic Data

c. Other Programs

(8) Environmental Data Studies

JUSTIFICATION: The Environmental Data Studies Program request is $100,000. Funds will be used to continue and to improve environmental program management performance. Funds will be used to continue development of an Internet accessible Environmental Database System, to support collection and sharing of environmental information for national and regional inventories and assessments and train field personnel in its access and use. We will begin development of a prototype environmental trend analyzer; coordinate our performance measurement and data cataloguing efforts with related environmental policy studies and GPRA according to work plans developed in FY 2001.

ACCOMPLISHMENTS FOR FISCAL YEAR 2001:

1. Developed a working prototype of the Environmental Database System (EDS). Using only an internet browser such as Netscape, EDS-Atlas allows researchers to develop performance statistics for selected states, Corps offices or other geographic areas, as well as for each of the major Corps environmental programs (Section 1103, 1135, 204, etc.). EDS-Encyclopedia, accessible through the same address is a research tool for those engaged in environmental studies. EDS-Encyclopedia provides ratings for the quality and ease of use of each linked site. It also provides “deep” links directly to data sources, rather than the more commonplace links to agency homepages that require considerable additional search time.

ACCOMPLISHMENTS FOR FISCAL YEAR 2002:

1. Update data for Corps projects that are already in the EDS but have proceeded to another stage.
2. Design a strategy to track the Corps mitigation for environmental impacts from Corps projects.
3. Design and initiate efforts to support environmental reporting per GPRA.
4. Lessons learned report on IWR review of Environmental reports for performance data.

APPROPRIATION TITLE: General Investigations, FY 2003

2. Collection and Study of Basic Data

c. Other Programs

(9) Remote Sensing Systems Support

This item supports the overall technology transfer requirement of the Corps Civil Works Program for Remote Sensing systems, which is the responsibility of the Cold Regions Research and Engineering Laboratory (CRREL) through its Remote Sensing/Geographic Information Systems (GIS) Center of Expertise.

SUMMARIZED FINANCIAL DATA

Estimated Five-Year (FY2003-2008) Program Cost	$1,500,000
Allocation Requested for FY 2003	200,000
Balance to Complete Five-Year Program after FY2003	1,300,000
Allocation for FY 2002	300,000
Change in FY 2003 from FY 2002	(100,000)
Average Annual Allocation for FY1998-2002	300,000

JUSTIFICATION:

The Remote Sensing/GIS Center is the Corps' Center of Expertise for Civil Works Remote Sensing and GIS technologies. Through centralized management of this function, the Center provides cost-effective technology transfer and applications development in support of Corps mission responsibilities in all business practice areas: navigation, flood and coastal storm damage reduction, hydropower, regulatory, environment, emergency management, recreation, water supply, and work for others. Continuing interaction with other researchers and practitioners throughout the Corps, government, the private sector, and academia assures knowledge of evolving trends that are important for the Corps and that duplication of effort is avoided.

Declines in manpower require working smarter, better, and faster. Contributing to this effort, the Center develops approaches for the integration of data from the disparate sources necessary for regional sediment management, water control, land and water resource management, support to emergency management, and compliance with the attendant environmental regulations and related policies. The Center maintains cognizance of state-of-the-art sensors, data collection, analysis, and storage systems, commercial software, and bridging software that integrates these and operational technologies into the Corps divisions, districts, and other agencies' activities. Technology is transferred through telephone and short no cost assistance to the field. The existence of the Center ensures that the necessary support can be rapidly directed toward solving operational problems that require specialized expertise. The PROSPECT training program in remote sensing and GIS, managed by Center staff, provides another avenue for the transfer of knowledge to those who are, or soon will be, using these technologies. Training also is conducted in the field, through workshops and conferences. White papers, pilot projects, Corps and other publications, including Engineering Letters, Circulars, and Manuals, and the Internet, also are used to transfer procedures and lessons learned to end users.

APPROPRIATION TITLE: General Investigations, FY 2003

2. Collection and Study of Basic Data

c. Other Programs

(9) Remote Sensing Systems Support (continued)

ACCOMPLISHMENTS IN FY 2002:

1. Served as key resource and technology point of contact for the Corps of Engineers for Civil Works remote sensing and GIS.

2. Managed, distributed and contributed funds toward contract for enterprise geospatial data to all Corps entities.

3. Continued technology transfer through training courses, briefings, technical papers, technical demonstrations, pilot programs, and conferences.

4. Supported national geospatal data viewers for Corps programs.

5. Developed a geospatial system for tracking of hazardous and toxic materials on barges.

6. Provided state-of-the-art remote sensing, image processing, and geospatial data systems support to the Corps Civil Works Program through management of the Geospatial Program Area, Remote Sensing, and GIS R&D Programs. Analyzed and reported on general and application specific geospatial R & D.

7. Supported one-stop service requests from Corps districts and divisions.

8. Provided support to development of strategic directions in Corps Science, Engineering and Technology business process transition.

9. Provided the venue for and taught 7 Corps PROSPECT GIS training courses and 2 Remote Sensing courses.

10. Provided technical support to Corps District offices for the development of implementation plans for Geospatial data management including development of enterprise geospatial data approaches.

11. Developed and distributed national geospatial data coverages for emergency management and other Corps business practice applications.

12. Member of the CADD/GIS Technology Center's advisory support team.

13. Participated in development of Future Operating Capabilities and a redefined strategic approach to Civil Works R&D

APPROPRIATION TITLE: General Investigations, FY 2003

2. Collection and Study of Basic Data

c. Other Programs

(9) Remote Sensing Systems Support (continued)

14. Assisted with the development of a Corps Common Delivery Framework to promote more efficient development of R and D products.

15. Sponsored and participated in program development of national and international remote sensing and GIS conferences.

16. Hosted web sites for ice jams and snow melt forecasting.

17. Provided civil funds to the CCIO to support identifying field imagery requirements.

ACCOMPLISHMENTS IN FY 2001

1. Served as key resource and technology point of contact for the Corps of Engineers for Civil Works remote sensing and GIS.

2. Acquired and distributed enterprise geospatial data to all Corps entities. With HQUSACE, evaluated Corps geospatial data requirements.

3. Continued technology transfer through training courses, briefings, technical papers, technical demonstrations, pilot programs, and conferences.

4. Worked with HQUSACE to develop a Corps-wide GIS Viewer for common data.

5. Developed national geospatial data viewers for Corps programs.

6. Provided the venue for and taught 7 Corps PROSPECT GIS training courses and 1 Remote Sensing course; continued development of PROSPECT image processing course.

7. Provided state-of-the-art remote sensing, image processing, and geospatial data systems support to the Corps Civil Works Program through management of the Geospatial Program Area, Remote Sensing, and GIS R&D Programs. Analyzed and reported on general and application specific geospatial R & D.

8. Provided technical support to Corps District offices for the development of implementation plans for Geospatial data management including development of enterprise geospatial data approaches.

9. Supported one-stop service requests from Corps districts and divisions.

APPROPRIATION TITLE: General Investigations, FY 2003

2. Collection and Study of Basic Data

c. Other Programs

(9) Remote Sensing Systems Support (continued)

10. Developed and distributed national geospatial data coverages for emergency management and other Corps business practice applications.

11. Member of the CADD/GIS Technology Center's advisory support team.

12. Worked with Corps Districts, other federal and state agencies in support of the International Joint Commission's efforts on the Great Lakes study.

13. Participated in development of Future Operating Capabilities and a redefined strategic approach to Civil Works R&D

14. Sponsored and participated in program development of national and international remote sensing and GIS conferences.

15. Developed a new version of the Corps' Remote Sensing Manual that includes high resolution satellites and hyperspectral and digital airborne systems.

16. Hosted web sites for ice jams and snow melt forecasting.

SCOPE: This effort provides technical support to engineers and scientists utilizing CADD and GIS technology in the planning, design, construction, operation and maintenance of Corps projects. However, as there is no way of calculating the benefits which individual projects receive from the CADD/GIS Center, the Corps does not propose to charge projects and programs for the Civil Works share of its maintenance costs.

In 1992, the former Army Corps of Engineers' Computer Aided Design and Drafting (CADD) Center, located in the Army Engineer Waterways Experiment Station (WES), was expanded to an Army, Navy, Air Force (Tri-Service) center, including the addition of Geographic Information Systems (GIS) technology, by a joint agreement between the Corps, the Naval Facilities Engineering Command, and the Air Force Civil Engineer. Its purpose was to reduce duplication of effort between the three services in the management of CADD/GIS technology for facilities and environmental engineering. Since that time, the Defense Logistics Agency (DLA), the General Services Administration (GSA), State Department, U.S. Marine Corps, U.S. Coast Guard, National Institute of Building Sciences, NIMA, EPA, and NASA have joined this effort. As a result, this Center is a multi-agency vehicle to set standards, coordinate CADD/GIS systems uses, promote system integration, support centralized acquisition, and provide assistance for the installation, training, operation, and maintenance of CADD/GIS systems within the DoD facilities and environmental communities, including the Corps districts. All Corps districts that use CADD and GIS in mapping, planning, real estate, design, construction, operations, maintenance, and homeland defense and readiness benefit from the Center's efforts.

APPROPRIATION TITLE: General Investigations, FY 2003

2. Collection and Study of Basic Data

c. Other Programs

(10) Automated Information Systems Support - Tri-Service CADD/GIS Technology Center (continued)

For FY 2002, the consolidated Army/Navy/Air Force funding portion was $2,291,000, the Civil Works portion was $650,000, the Naval Facilities Engineering Command portion was $250,000, the Air Force Civil Engineer Command portion was $100,000, and the U.S. Marine Corps portion was $100,000 for a total of $3,341,000. The $450,000 requested for FY 2003 for the Civil Works portion will support approximately 1,000 workstations and 2,000 users of CADD/GIS technologies for Civil Works Projects.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2003-2008) Program Cost	$3,250,000
Allocation Requested for FY 2003	450,000
Balance to Complete Five-Year Program after FY 2003	2,800,000
Allocation for FY 2002	650,000
Change in FY 2003 from FY 2002	(200,000)
Average Annual Allocation for FY 1998-2002	650,000

JUSTIFICATION: All Corps districts use CADD and GIS computer systems for Civil Works engineering, design, mapping, planning, and facility management. All engineering drafting tables have been replaced with CADD platforms or computer mapping systems and most Crops environmental and natural resource analysis are being performed on GIS platforms. The geospatial data standard efforts of the Center were coordinated with the American National Institute of Standards to develop a National GIS Standard which was approved in November 2001 and includes civil works and homeland defense features. Standards and productivity enhancement tools developed by the Center are used for both in-house and contractor produced drawings, maps and analyses which assures that all Corps offices have the ability to exchange their work among themselves and with others, including the private sector. The Center is actively coordinating its CADD standards with the National Institute of Building Sciences and has created a National CADD Standard, thus reducing the redundancy with the private sector and reducing cost for both government and the private sector. The Center ensures that the Corps obtains the maximum return on its investment in CADD and GIS by coordinating development efforts and distributing end products to Corps offices. The CADD and GIS systems at field offices can achieve maximum productivity when they take advantage of the economies of scale offered by sharing the development and use of common data standards, procedures, and applications. This sharing is accelerated through a concerted effort by the Center, working with various field working groups, to draw from field expertise and dissemination of this knowledge in the form of lessons learned and standards to benefit all Corps users. Comprehensive data standards supported by the Center permit government and industry users to produce equivalent designs, maps and analysis on a variety of computer systems using commercial off-the-shelf CADD and GIS software.

APPROPRIATION TITLE: General Investigations, FY 2003

2. Collection and Study of Basic Data

d. Other Programs

(10) Automated Information Systems Support - Tri-Service CADD/GIS Technology Center (continued)

ACCOMPLISHMENTS IN FY 2002:

1. Release 2.0 of the A/E/C CADD Standard (both document and software tools) was released on CD-ROM. This released added several new tools designed to assist the user in implementing the Standard. These new tools included: (1) the File Converter, which can convert a CADD file that conforms to the former Corps EM 1110-1-1807 CADD Standard to Release 2.0 of the A/E/C CADD Standard and (2) the File Manager, which assists users in naming files so they are compliant with Release 2.0 file naming conventions. Implementation software for both MicroStation and AutoCAD were released.

2. The GIS Spatial Data Standard for Facilities, Infrastructure, and Environment (SDSFIE) Release 2.10 and 2.20 was completed. The SDSFIE included continued development of the GIS data standards for Civil Works activities, which provide a common data format for the development of GIS on civil works projects, thereby cutting costs and allowing sharing of data sets among government agencies and the private sector. Electronic tools were developed to facilitate the construction of GIS datasets for various GIS vendor products (e.g. Intergraph's GeoMedia and ESRI's ArcGIS).Several training courses on implementation and use of GIS data standards were conducted. The SDSFIE was also adopted as a national standard by the American National Standards Institute (ANSI).

3. Enhanced the Electronic Bid Solicitations (EBS) program by establishing a Central Listing of all bid solicitations from DoD agencies and continued to work with *The Bluebook* company to make solicitations available to a wider audience. The Center instituted an EBS hosting service at to support those offices/agencies lacking the expertise to develop their own. Began initial development of a totally "online" bid process. Conducted two EBS PROSPECT courses.

4. Developed a core set of geospatial dredging standards and terms that assist in managing dredging projects. Corps managers are able to analyze dredging and related data more quickly and accurately to facilitate data sharing and upward reporting. These standards will be incorporated into the Center's nationally recognized Spatial Data Standards for Facilities, Infrastructure, and Environment (SDSFIE).

5. Developed a Web based Structural Virtual Center of Expertise to provide engineering solutions and resources for structural design problems and to provide links to experts from USACE District offices for additional help to designers.

6. Continued development of Library of CADD Designs and added projects to the library. The library grew to over 150 projects and was visited by over 2,000 different visitors. The library provides design information on past designs. Designers can take advantage of this information in the design of new projects.

APPROPRIATION TITLE: General Investigations, FY 2003

2. Collections and Study of Basic Data

c. Other Programs

(11) Flood Damage Data Program

SCOPE: The Flood Damage Data Program is required to facilitate the collection and maintenance of basic flood damage data to support Corps field offices in accomplishment of flood damage reduction studies. Planning and evaluation of flood damage reduction projects requires knowledge of actual damages caused to various types of properties. The relationships between flood depth, flood duration and velocity, value and type of property, and the amount of damage are essential to making accurate and supportable estimates of the value of projects. The distributions of damages resulting from the various factors involved are needed for the risk analysis framework adopted for water resource studies. Damage data are obtained in rare instances when a damaging event occurs and funded studies are underway. However, in most instances when flooding occurs there are no current studies in the area or other funding mechanism to collect the requisite data to be used in future analysis or to report and accurately record the damages incurred and account for the effect of the factors that caused the damages. Previously no centralized flood damage data source existed which retrieved basic data for research efforts and for specific project studies. The major purpose of the program is to improve the technical quality and accuracy of flood damage data, to improve the understanding of the interrelationships of the characteristics of flooding on property damage, to improve the formulation of flood damage reduction projects, and reduce the costs of feasibility studies. Coastal damage data collection will be needed to adapt to new coastal protection policies and to respond to concerns from the Office of the Assistant Secretary of the Army (Civil Works) in the review of recent coastal protection projects. The activities of the program are to: (1) conduct actual flood damage surveys following flood events for riverine and coastal events; (2) develop, maintain, and improve the economic database for flood damage reduction projects; (3) calculate flood depth-damage functions for riverine and coastal flooding based on actual damage data; and, (4) develop and maintain a floodplain inventory application that would be used to apply flood damage estimation models to feasibility, reconnaissance, and continuing authority studies.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2003-07) Program Costs	$3,500,000
Allocation Requested for FY 2003	$ 300,000
Balance to Complete Five-Year Program after FY 2003	$3,200,000
Allocation for FY 2002	$ 400,000
Change in FY 2003 from FY 2002	$ (100,000)
Average Annual Allocation for FY 1998 - 2002	$ 350,000

APPROPRIATION TITLE: General Investigations, FY 2003

2. Collections and Study of Basic Data

c. Other Programs

(11) Flood Damage Data Program (continued)

JUSTIFICATION: The $300,000 requested in FY 2003 for Flood Damage Data would be used to develop and maintain data collection survey forms and data collection techniques, to collect post-flood damage data, to employ the flood damage database to estimate a National model where regional or local flood characteristics can be specified to estimate flood damage relationships, to update and maintain a computer application for applying flood damage models to floodplain inventory data, and to develop generic business flood damage relationships. Funds would be used to monitor data collection, to collect damage data for riverine and coastal flood events, and data analysis and the development of generic damage relationships.

ACCOMPLISHMENTS:

1. Flood damage surveys, using material from OMB-approved questionnaires have been developed, reviewed, and pre-tested.
2. Data collection techniques and data tabulation procedures have been developed.
3. Over 2,000 residential surveys and over 300 business surveys have been completed for properties in 17 flood-damaged areas. A database has been created from these surveys and analysis is continuing. A report has been issued with residential depth-damage functions computed from the case studies.
4. Generic residential content and structure damage functions have been released for single-family homes.
5. Generic business structure damage functions and vehicle damage functions have been computed and documented.
6. A research design report has been completed for further development of risk-based damage function calculation, using additional data from building industry component costs models and data collected as part of this program.
7. A residential depth-damage function application has been developed for Corps-wide use. The application will be used to determine the depth-damage relationships based on building characteristics and county-specific building costs. The model has incorporated structure and content estimation and structure and content damage for a comprehensive array of structure types, foundation types, exterior building material, quality, and period of construction. The model has been released to Corps districts for integration with the HEC-Flood Damage Analysis Package for evaluation of flood damage reduction benefits.
8. The floodplain application has been modified to include a facility for estimating commercial structure and content values.
9. A primer has been issued to help Corps personnel better consider subjective factors, such as effective age, quality, and condition when assessing the value of flood-prone residential property.
10. A review of potential methodologies and data sources for estimating flood damage to roads has been completed. A preliminary model for estimating flood damage to roads has been released and field tested.

Approximately 100 records have been collected on homes that have suffered coastal flood damage.

A research design report has been completed for further development of risk-based damage function modeling for coastal storm damage.

APPROPRIATION TITLE: General Investigations, FY 2003

3. Research and Development

The Corps must pursue an aggressive R&D effort to take advantage of rapidly developing technologies and techniques that offer the possibility of significant monetary savings and greater reliability, safety, and enhanced efficiency in planning, design, construction, operations and maintenance of civil works activities.

The Civil Works R&D program is formulated to directly support the established business programs and strategic directions of the Civil Works Program including: flood and coastal storm damage reduction, inland and coastal navigation, environment (including natural resources, compliance, mitigation, and restoration), water supply, hydropower, recreation, emergency management, and regulatory. The Civil Works R&D requirements are primarily user driven and the effort is essentially a problem-solving process by which the Corps systematically examines new ideas, approaches, and techniques, with a view toward improving the efficiency of its planning, design, construction, operations and maintenance activities. The request for $22,000,000 of General Investigations funds for the FY 2003 program would accomplish only the very highest priority R&D needs.

Results of this R&D effort are directly incorporated into practice within the Civil Works Program through the Civil Works Guidance Maintenance Program involving revisions or additions to Engineer Regulations, Engineer Manuals, Technical Guidance Manuals, Engineer Technical Letters, or Guide Specifications. Numerous other means of technology transfer are also used such as training courses, workshops, and other professional contacts. The Corps Civil Works R&D Program continues to provide practical end products and a high return on investment for the Corps and the Nation.

COORDINATION:

The Corps manages and conducts Civil Works R&D through the U. S. Army Engineer Research and Development Center (USAERDC). The USAERDC consists of seven research laboratories:

Coastal and Hydraulics Laboratory, Vicksburg, MS
Cold Regions Research and Engineering Laboratory, Hanover, NH
Construction Engineering Research Laboratory, Champaign, IL
Environmental Laboratory, Vicksburg, MS
Geotechnical & Structures Laboratory, Vicksburg, MS
Information Technology Laboratory, Vicksburg, MS
Topographic Engineering Center, Alexandria, VA.

Some elements of Civil Works R&D are also assigned to the Corps Institute for Water Resources (IWR) at Fort Belvoir, VA and its Hydrologic Engineering Center (HEC) at Davis, CA.

APPROPRIATION TITLE: General Investigations, FY 2003

3. Research and Development

In order to most effectively use the limited R&D resources and to avoid unnecessary duplication of research effort, the Civil Works R&D Program maintains aggressive external technical exchange and technology transfer programs with other Federal agencies including the TVA, Bureau of Reclamation, Bonneville Power Administration, Western Power Administration, the Soil Conservation Service, EPA, NRCS, and the Fish and Wildlife 2. Collections and Study of Basic Data Service. In addition, Corps researchers are in continuous close contact with NOAA, USGS, USCG, NASA, DOT, NIST, FHWA, NRC, the Navy, and state and local governments concerning Civil Works R&D activities.

Corps researchers also maintain continuing contact with the research activities of universities and industry through regular membership in such organizations as the American Society of Civil Engineers, the Civil Engineering Research Foundation, the American Concrete Institute, the American Society of Testing and Materials, the International Conference on Coastal Engineering, the American Association of Port Authorities, the Coastal Society, the Offshore Technology Conference, International Society of Soil Mechanics and Foundation Engineering, U.S. and International Committees on Large Dams, and the Permanent International Association of Navigation Congresses. The Corps also participates extensively with the Transportation Research Board, the Water Science and Technology Board, and the National Research Council in coordinating and leveraging research activities.

SUMMARIZED FINANCIAL DATA:

Estimated Five Year (FY 2003 - FY 2007) Program Cost	$180,000,000
Allocation Requested for FY 2003	22,000,000
Balance to Complete Five Year Program after FY 2003	158,000,000
Allocation for FY 2002	18,459,000
Change in FY 2003 from FY 2002	3,541,000
Average Annual Allocation for FY 1998-FY 2002	23,248,000

APPROPRIATION TITLE: General Investigations, FY 2003

3. Research and Development

CURRENT RESEARCH EFFORT:

The proposed FY 2003 R&D Program is structured to directly support the Civil Works business programs and the anticipated technological requirements of the Civil Works Program. Strategic emphases of the R&D program include:

Regional Sediment Management
Systems-Wide Modeling, Assessment & Restoration Technologies (SMART)
Innovative Flood Protection & Urban Channel Restoration Technologies

Improved sediment management at navigation and flood damage reduction projects offers tremendous potential for future project cost reduction. Research in this area is focused on sedimentation prediction and control techniques, optimizing channel depths and dimensions including more cost-effective deep-draft channel design criteria to safely and efficiently accommodate future international shipping requirements, reduced dredging costs, increased navigation channel safety and reliability, and increased options and opportunities for beneficial uses of dredged sediment. Close coordination will be essential between this research area and the SMART research program discussed below.

The Systems-Wide Modeling, Assessment & Restoration Technologies (SMART) Research Program addresses the Corps water resources needs at the system/watershed level. The objective of this research effort is to design state-of-the-science, user-oriented methods and procedures to restore and manage natural resources with application toward the total ecosystem/watershed. Research is also focused on environmental restoration technologies for a wide range of water resources management needs. The focus of this research enables the Corps to meet the legal requirements of the National Environmental Policy Act (NEPA) and the Endangered Species Act (ESA), while supporting critical technology needs of the major civil works business programs of Environmental Restoration, Navigation, and Flood Damage Reduction.

The innovative flood protection and urban channel restoration technologies research will include the following major thrust areas: integrated decision support tools and forecasting methodologies for use in flood damage reduction that incorporate changing urban settings, climate changes and extreme events; technologies for sustainable urban flood damage reduction (structural and non-structural); real-time surveys and system monitoring for improved condition assessment; and expedient and cost-effective flood fighting and related emergency operations.

APPROPRIATION TITLE: General Investigations, FY 2003

3. Research and Development

The Corps R&D Program includes six major research areas, as listed below:

Navigation Systems: Includes specific deep-draft (including Great Lakes) focused R&D programs on harbor entrances and coastal channels, coastal sedimentation and dredging, coastal structure evaluation and design, inland navigation hydraulics, and regional sediment management.

Flood and Coastal Protection: Includes specific R&D programs on flood damage reduction and stream restoration, hydrologic engineering, cold regions engineering, and innovative flood protection and urban channel restoration.

Environmental Technologies: Includes specific research on watershed assessment technologies, ecosystem management and restoration, long-term effects of dredging operations, and system-wide modeling, assessment, and restoration technologies.

Infrastructure Engineering: Includes specific research on high-performance materials and systems, sustainable infrastructure technologies, and risk analysis for dam safety.

Geospatial Technologies: Includes specific research on survey and mapping, remote sensing, and geographic information systems (GIS) and geospatial data management that support all civil works business programs.

Integrated Technologies for Decision Making: Includes specific research on Decision Support Technologies for the Civil Works program and risk analysis of water resources investments. .

APPROPRIATION TITLE: General Investigations, FY 2003

3. Research and Development

RESEARCH AREA	FY 2002 ALLOCATION	FY 2003 TENTATIVE ALLOCATION
a. Navigation Systems	$ 4,243,000	$6,100,000
b. Flood and Coastal Protection	4,813,000	3,800,000
c. Environmental Technologies	3,308,000	4,500,000
d. Infrastructure Engineering	3,755,000	3,440,000
e. Geospatial Technology	1,530,000	2,860,000
f. Integrated Technologies for Decision Making	810,000	1,300,000
	$18,459,000	$22,000,000

APPROPRIATION TITLE: General Investigations, FY 2003

3. Research and Development

a. Navigation Systems

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2003-2007) Program Cost	$ 40,000,000
Allocation Requested for FY 2003	6,100,000
Balance to Complete After FY 2003	33,900,000
Allocation for FY 2002	4,243,000
Change in FY 2003 from FY 2002	1,857,000
Average Annual Allocation for FY 1998-2002	6,517,000

JUSTIFICATION:

The Corps of Engineers' navigation mission is to provide safe, reliable, efficient, effective, and environmentally sustainable waterborne transportation systems (channels, harbors, and waterways) for movement of commerce, national security needs, and recreation. The U.S. Marine Transportation System (MTS) consists of over 300 ports, 1,000 harbor channels, and 25,000 miles of navigation channels, and is an integral part of both the U.S. economy and national security system. The MTS contributes more than $700 billion per year to the gross domestic product, produces $150 billion per year in federal taxes, and employs more than 13 million people. It supports rapid deployment of military forces and movement of equipment and supplies from strategic ports. Despite its importance, the MTS is under serious strain. The Congressionally-mandated interagency MTS task force and maritime industry report that commercial navigation will double by 2020; yet the MTS is already operating at near-full capacity in many areas and is being challenged by new vessel designs and traffic loads that exceed its channel, harbor, and lock capacities. Eighty-three Corps' locks are older than their 50-year design life, and 11 of them are over 80 years old.

The Corps of Engineers' navigation project infrastructure encompasses a capital stock valued at approximately $31.5 billion with an annual budget of about $1.9 billion, which is not enough to meet existing needs, much less the projected demand on the system. The U.S. faces a loss in global competitiveness unless it addresses the navigation system's maintenance and modernization needs.

3. Research and Development

a. Navigation Systems (continued)

Excessive sediment erosion, transport, and deposition are estimated to cause damages of approximately $16 billion annually in North America (Osterkamp, W. R., P. Heilman, and L. J. Lane, "Economic Considerations of Continental Sediment Monitoring Program," International Journal of Sediment Research, (4) December 12-24, 1998). The Corps dredges about 285 million cubic yards per year at a cost of about $500 million. Sediment overloading from land and stream erosion causes significant environmental and economic challenges – excessive sediment in rivers, reservoirs, and estuaries may contribute to high turbidity, to loss of flood-carrying capacity, and to loss of full channel dimensions in navigation facilities. Yet, in other areas a shortage of sediment causes coastal erosion, streambank erosion, and wetlands loss in many locations. Constraints on disposal of dredged sediments place severe restrictions on the USACE ability to deepen and widen, or even fully maintain navigation channels, causing delays to commercial traffic and impeding military traffic. Management of sediment at regional scales has been specifically identified as a key component of high performance, environmentally sustainable water resource projects.

Water resource projects can be designed and operated to remedy local sediment problems, but sometimes at the expense of creating even larger problems some distance away. Successful project design and operation requires that sediment issues be resolved at both the local and regional levels, yet resource managers lack the information and tools they need to make informed decisions. These challenges adversely affect navigation, flood and storm damage reduction efforts, and environmental quality in water resource projects. The 1999 MTS Task Force report provides a national vision for the MTS of 2020 and recommends research and development (R&D) on overall effective sediment management, including " . . . holistic watershed and local/regional planning efforts."

In light of these pressing national needs, this research and development program area provides tools and technology for the Corps of Engineers to improve the navigation system's functional performance, preserve and enhance environmental quality of our waterways, reduce unit costs, and improve safety. Specific objectives of this research area are to develop engineering technologies that increase the effectiveness and reduce the per project costs of harbor and channel projects that provide deep-draft and shallow-draft navigation for domestic and international commerce. Engineering tools, computer models, and design guidance are developed for defining and managing water levels and currents that affect navigation and sedimentation, waves that impact coastal structures and drive sedimentation processes, sediment that settles in navigation channels and harbors, and vessel transits within navigation channels and structures. Engineering tools, computer models, and design guidance are developed to enable rapid and economical navigation facility design, construction, repair, and rehabilitation. The program balances efforts on critical present-day problems facing the Corps of Engineers with those that prepare the Corps to meet U.S. navigation system needs of the future.

APPROPRIATION TITLE: General Investigations, FY 2003

3. Research and Development

a. Navigation Systems (continued)

FY 2003 ACTIVITY:

1. Regional Sediment Management. Maintaining navigable waterways and flood channels in the face of continuing sediment deposition consumes a substantial portion of the Corps of Engineers' budget. More effective sediment management could reduce dredging costs in many projects by diverting sediment from channels and into designated deposition zones, stretching dredging funds further and keeping more projects fully maintained. An understanding of sediment processes is critical for producing cost-effective plans and designs for effective navigation projects, estimating channel shoaling, locating optimum dredged-material placement, and assessing the impact of navigation projects and structures on adjacent waters, shorelines, and downstream areas. Technologies will be developed to measure sediment transport, provide the fundamental knowledge required to evaluate alternative strategies for sediment management, and minimize or mitigate navigation-project impacts. Work on regional sediment management tools begun in prior years will be expanded and extended to other areas. For example, the Coastal Sediment Budget Analysis System, developed in prior years, will be extended upstream to estuaries and rivers and ultimately to watersheds. Work will begin to develop other knowledge and tools needed for effective regional sediment management, including regional monitoring, modeling, and analysis tools; designs for altering or mediating sediment pathways; methods for quantitative comparison of alternatives in terms of regional versus local effects; a knowledge base of suitable methods and lessons learned from experience; and project managers' decision support tools with local versus regional impacts tradeoffs.

2. Coastal and Inland Waterways. Waterway hydrodynamics -- waves, currents, and water levels -- affect navigation safety and move sediment that shoals channels and harbors. Along with vessel impacts, they can also damage navigation structures (e.g., locks, guidewalls, breakwaters, and jetties). Research will lead to optimizing navigation channel dimensions and depths based upon hydrodynamic forces, ship motions, and the future vessel fleet. Research will also lead to reliably and accurately describing and managing hydrodynamics in waterways and locks so that vessels transit more quickly and safely. For example, wave, current, and water-level data will be used to develop and validate models of coastal phenomena for effective navigation-project design based on accurate estimates of forces and design conditions. Designs will be developed for improved lock approach channels and coastal entrance channels considering a more precise definition of underkeel clearance requirements. Methods to improve reliability of navigation channel depth and width will be developed to maximize the safe use of existing channels and minimize dredging requirements while providing a higher level of service. Methods to estimate coastal-wave conditions through laser-ranging technology for planning, design, construction, maintenance, and operation of coastal structures as well as the mitigation of the impacts of navigation structures on adjacent shorelines will be developed.

3. Navigation Systems. Work will be initiated to develop technologies to provide innovative approaches for evaluating alternatives and optimizing designs of navigation structures while enhancing environmental quality. These will include examination of improved ice/debris control measures, new chamber mooring and line handling processes, simplified filling and emptying systems, innovative fleeting facilities and self-help concepts, and others. Technologies will be developed to predict the performance of navigation structures such as training dikes, breakwaters, jetties, groins, seawalls, and/or revetments. The prediction and prevention of breakwater deterioration will facilitate risk assessments and future performance estimates in the design of new or rehabilitated structures

APPROPRIATION TITLE: General Investigations, FY 2003

3. Research and Development

a. Navigation Systems (continued)

FY 2002 ACCOMPLISHMENTS:

1. Numerical methods were validated for evaluating the hydrodynamics of bendway weir training structures. Design guidance was developed regarding appropriate dimensions for spacing, height, length, and angle relative to safe navigation. These structures have resulted in millions of dollars in savings from reduction in dredging requirements, improved navigation efficiencies, improvement in navigation safety, reductions in traffic delays, and numerous environmental benefits.

2. Guidance for design of navigation channels pertaining to required underkeel clearance was developed for both inland vessels and deep-draft vessels in entrance channels. With increasing vessel drafts and continued improvements in bulk carrier and intermodal transportation efficiencies, more accurate channel design guidance will enable greater capacity in existing navigation channels and optimize maintenance dredging costs

3. A hydrodynamic model was developed to use as a screening tool in designing lock approaches and evaluating walls. Design guidance on various wall types was developed to insure safe, efficient navigation conditions. The cost of traditional lock guard walls is on the order of $20,000 per linear foot. This guidance optimizes the length and type of wall used to minimize unnecessary costs. Improvements to lock approaches have a high potential for reducing traffic delays on the inland waterway system and increasing the capacity of existing locks.

4. The Innovations for Navigation Program was completed, producing numerous technologies for constructing and repairing inland navigation structures in a more efficient, cost-effective, and environmentally sound manner. Products included grouts for underwater placement, guidance on barge impact of structures, float-in construction materials and methods, innovations for lock automation, innovative lock filling to improve ice passage, and new lock fill and emptying designs. Navigation projects that will benefit from the technology developed under this program include authorized projects such as McApline Locks, Inner Harbor Industrial Lock, Locks 2,3, and 4 Monongahela project, Marmet Lock, Soo Locks, Olmsted Locks, and Kentucky Lock, plus major rehabs and proposed replacements on the Upper Mississippi and Illinois Waterways, McClellan-Kerr Arkansas River, and the Ohio River Main Stem.

5. Wave and littoral transport models were improved, with more realistic physics incorporated and a standard graphical user interface adapted for their use. Extensive field data sets were used to improve the models' formulations and prove their reliability. The coastal Sediment Budget Analysis System was fielded and a Diagnostic Modeling System for coastal channel sedimentation problems was put into trial use on several projects. These tools will collectively provide the Corps with more effective management of coastal navigation projects with less impact on adjacent shorelines.

6. Guidance was provided for determining sill heights in locks that can be used to evaluate economic trade-offs between sill height and lock entry and exit times.

3. Research and Development

a. Navigation Systems (continued)

7. Lessons learned from regional sediment management demonstration projects were documented and published. A regional sediment management web site was created and made operational, offering technology transfer to the Corps and others and providing educational information for the Corps and its stakeholders. Selected gaps in knowledge of sediment management were filled so that new tools for assessing and managing sediment problems can be developed with the full confidence of the Corps and its partners.

8. The Coastal Engineering Manual (CEM), a state-of-the-art and comprehensive manual that incorporates all the tools and procedures used in planning, design, construction, maintenance, and mitigation of coastal navigation projects, was adapted for distribution to the field through the Internet.

APPROPRIATION TITLE: General Investigations, FY 2003

3. Research and Development

b. Flood and Coastal Protection

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2003-2007) Program Cost	$30,000,000
Allocation Requested for FY 2003	3,800,000
Balance to Complete after 2003	26,200,000
Allocation for FY 2002	4,813,000
Change in FY 2003 from FY 2002	(1,013,000)
Average Annual Allocation for FY 1998-2002	3,510,000

JUSTIFICATION:

In carrying out the Flood and Coastal Storm Damage Reduction mission, the Corps of Engineers operates 383 major lakes and reservoirs, maintains 8,500 miles of levees, and has over 100 coastal storm-damage reduction and related projects. The average annual flood damage prevented by Corps' projects from 1985 to 1994 was $14.6 billion. Return on investment from 1928 to 1993 has been 8.41:1. In the past five years, Federal shore protection expenditures have increased to more than $100,000,000 per year. Research for both coastal shore protection and inland flood damage reduction is now focusing upon reducing the life cycle costs and the loss of life and property. There is need to develop technologies for inland flood, coastal shore protection, and beach nourishment that assures that each project is sustainable. In the inland area, there has been a shifting focus for new projects from large flood damage reduction projects towards watershed management and smaller flood damage reduction systems. This has required an emphasis on the development of appropriate design guidance and planning and engineering technology to accelerate the process of restoring channels in a more cost-effective and environmentally sound manner. The sedimentation response of flood-control channels; bank protection methods for flood-control and navigation channels; ice impacts on flood-control and navigation channels and structures; and impacts of climate change on hydrologic events will be addressed.

3. Research and Development

b. Flood and Coastal Protection (continued)

There has been a new focus on development of innovative technologies for existing flood damage infrastructure, especially levees. New technologies are needed to assure existing levees provide the authorized level of protection and to assist with flood fighting operations. Innovative use of remote sensing for detection of weakened levees, satellite linked GIS/GPS laptops to assist with onsite flood fighting, and improved flood forecasting capabilities must be integrated.

While the emphasis for types of new projects is shifting, concurrently, existing projects must be optimally consistent with authorized purposes. Improved analysis methods for decision support for reservoir operations are needed. Also, watershed and riverine analysis methods need improvement to take advantage of new real-time data sources, such as precipitation radar, to accurately forecast real-time flow and stages. In addition, advanced statistical methods are needed to better understand project inflows and performance.

Increased research emphasis is being undertaken to develop new technologies for reducing flood damages in urban areas that include both structural as well as non-structural alternatives. Urban development in the inland areas, as well as the coastal areas, requires new technologies to reduce the flood damages in urban areas. Flood damages continue to occur across the United States at about $4 billion annually. Innovative methods must be developed to reduce flood damages, protect vital urban infrastructure, and restore damaged urban channels.

FY 2003 ACTIVITY:

1. The use of grade control structures for channel restoration is becoming more important across the US and around the world. Guidance for the proper sitting and spacing of grade control structures will be developed.

2. Determination of the physics of piping within existing levees is a high priority for determining remedial solutions to weakened levees. Analytical techniques will be developed to give design engineers guidance.

3. Development of a transportable system for field use during flood fighting operations to provide GIS/GPS capability and connectivity to a command center in a real-time mode will be finalized.

4. Channel restoration is a significant objective of many current and proposed Corps local flood protection projects. Guidance will be developed for hydraulic design of channel restoration projects. Guidelines will be documented in professional journals, technical reports and engineering manuals.

5. Numerical Modeling is frequently used in flood management and habitat enhancement engineering studies. A variety of multi-dimensional approaches exist. Guidance will be developed to explain the applicability, data requirements, and ease of use for the various modeling techniques, particularly the application of 2-dimensional hydrodynamic and sediment transport numerical models.

3. Research and Development

b. Flood and Coastal Protection (continued)

6. Accretion of ice on dam walls, dam gates, strut arms, and other machinery causes machinery to become inoperable. Optimization of existing and development of new deicing/anti-icing methods and materials will be pursued for application to new and rehabilitated water control structures.

7. A recently completed, spatially distributed snowmelt model that includes forest canopy effects and improved snowmelt algorithms will be integrated in the Corps' next generation Hydrologic Modeling System (HEC-HMS).

8. Ice modules have been incorporated in Corps' hydraulic numerical models HEC-RAS and UNET. Development of discrete particle computer simulation programs of ice transport in rivers and in lock approaches has been initiated and will be continued to assist in the design of river ice management and control methods.

9. An ice jam database has been created that is available on line for use in ice jam control studies. Initial ice formation and ice jam predictive methods have been developed and will be pursued for use in risk and uncertainty analysis and other hydraulic projects.

10. Accurate and timely prediction of flood water elevations and flood damage during floods is critical to the successful protection of lives and property along river systems and for the design of flood management plans and protection projects. Enhanced computer models will be released for analysis of flood wave passage through rivers, locks and dams, tunnels, complex hydraulic channels, structures, and for flood damage reduction.

11. Determining reservoir releases during flood events requires consideration of increasingly complex data and circumstances, such as forecasted inflow, reservoir system status, flood plain occupancy vulnerability, and reservoir/flood plain wildlife environment, to name a few. New reservoir operation algorithms will be developed that will facilitate real-time operation of existing river-reservoir systems as well as evaluate tradeoffs in operational purposes and planning of new or modified systems.

12. An apparent increase in extreme climate events, including El Nino effects, resulted in more attention to the potential for future flooding. Recent floods include the 1993 flooding in the upper Mississippi Basin and 1996 and 1997 flooding in the Sacramento Valley. The role of wetlands in natural flood attenuation is also of much interest. Improved flood runoff evaluation and forecasting techniques, companion computer models, and reporting/display methods will be developed that will significantly improve such analysis.

13. Urban flooding is a significant problem throughout the US and new guidance for reducing flood damages is necessary. Development of new innovative techniques for reducing urban flood damages will continue.

APPROPRIATION TITLE: General Investigations, FY 2003

3. Research and Development

b. Flood and Coastal Protection (continued)

FY 2002 ACCOMPLISHMENTS:

1. Guidelines were developed for evaluating channel stability and sedimentation relative to the design and maintenance of vegetated flood control channels.

2. Analytical tools for determining roughness losses and water surface elevations in compound, meandering channels were developed and a comprehensive literature review of grade control procedures was completed.

3. Channel restoration guidance was completed for: (a) determining the channel discharge that is predominant in forming the channel; (b) the effect that in-stream structures have on channel roughness; and (c) the effect of channel roughness in compound meandering channels.

4. Existing GIS/Hydrologic/Hydraulic and remote sensing capabilities with respect to real time assessments of existing levees were identified for use in future data base development.

5. Field laptop GPS/GIS mapping for use in flood fighting existing levees with communication to the command center was demonstrated, and a small waterproof handbook for flood fighting operations was completed.

6. The Ice Jam Database, was updated, now containing over 11,000 entries, and fully accessible and searchable by the public on the WEB for use in response to emergency situations and for background information for ice jam flood control studies. It was also updated with the capability to download to Palm Pilot for greater ease of use in the field.

7. Revisions were completed to Ice Engineering Engineer Manual chapters on nonstructural and structural ice control and technical guidance on the use of inflatable dams in ice-affected rivers and on River Ice Forecasting was published.

8. Laboratory experiments on coatings to reduce ice adhesion and electro-expulsion for deicing at locks and dams were completed.

9. Developed a cell-by-cell temperature index method for use in modeling snowmelt using HEC-HMS as well as an initial GUI for snowmelt modeling with HEC-HMS.

3. Research and Development

b. Flood and Coastal Protection (continued)

10. Developed a nonparametric method to combine open-water and ice-affected stage-frequency curves.

11. Average precipitation trends were identified using global climate model simulations for the period 1900 to 2100.

12. New methods and associated software that greatly improve the efficiency and accuracy of planning, design, and operation of flood damage reduction projects and support field office flood damage reduction studies and reservoir operations were released as follows:

a. A major new release of the Corps' River Analysis System (HEC-RAS) expands its applicability to simulation of dynamic flood waves through a variety of hydraulic structures and floodplain developments.

b. A major new release of the Corps' Hydrologic Modeling System (HEC-HMS) expands its capability to continuous simulation of soil moisture wetting and drying; this capability is especially important to reservoir inflow forecasting and water supply analysis.

c. A major new release of the Corps' Flood Damage Analysis Package (HEC-FDA) included an improved user interface and incorporation of GIS-based flood damage computations and displays.

d. The initial version of the Corps' new Reservoir System Simulation (HEC-RES) software was released.

e. A new software system using digital terrain and geographic information systems for the Corps' hydrologic and hydraulic modeling packages was released. This greatly enhances the preparation of input data and visualization of results.

APPROPRIATION TITLE: General Investigations, FY 2003

3. Research and Development

c. Environmental Technologies

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2003-2007) Program Cost	$30,000,000
Allocation Requested for FY 2003	$ 4,500,000
Balance to Complete after FY 2003	$25,500,000
Allocation for FY 2002	$ 3,308,000
Change in FY 2003 from FY 2002	$ 1,192,000
Average Annual Allocation for FY 1998-2002	$ 4,195,400

JUSTIFICATION:

The Corps operates and maintains 25,000 miles of inland and coastal navigation waterways, 562 reservoirs (5,500,000 surface acres), 237 navigation locks, 926 harbors, 75 hydropower projects, 879 flood control projects, and thousands of acres of adjacent lands as part of its water resource mission. Wide-ranging environmental stewardship is an integral part of Corps water resource management. Moreover, recent U.S. figures have estimated $16 billion per year in damages caused by point- and nonpoint-source pollution and up to 1 billion tons per year of eroded soils and industrial and agricultural contaminants that are deposited in the Nation's waterways. Over 12,000 miles of streams and rivers are directly impacted by acid mine drainage from an estimated 200,000-500,000 abandoned mines. These impacts are severely affecting multiple project uses, impeding navigation, and negatively affecting human and ecological health. An integral part of the Corps' mission is to ensure that project planning, construction, operation, and maintenance activities address critical environmental problems and incorporate environmental stewardship and sustainability considerations, while ensuring economic viability. The Environmental Technologies research area addresses the highest priority technical problems with state-of-science, cost-effective technologies for managing natural resources at Corps projects including: the development of system-wide modeling, assessment, and restoration technologies; aquatic ecosystem management and restoration; wetlands functional values; habitat management techniques for biota including threatened and endangered species; assessment and management of water quality problems; and the identification, assessment, and management of contaminated sediments. This program will provide scientifically proven and demonstrated economical solutions to the Corps' highest priority environmental problems, will reduce unnecessary regulatory burdens, and provide environmental stewardship with a very high return on taxpayer investment.

APPROPRIATION TITLE: General Investigations, FY 2003

3. Research and Development

c. Environmental Technologies (continued)

FY 2003 ACTIVITY:

1. Develop Grided Surface/Subsurface Hydrologic Analysis (GSSHA) code with surface nutrient/material fate and transport, publish updated user manual for modified GSSHA model and develop Watershed Modeling System (WMS) interface.

2. Develop generic visualization routines for Surface Water Modeling System, Watershed Modeling System, and Groundwater Modeling System.

3. Complete development of river basin water quality model, including application to regionally representative river basins and publish user's manual.

4. Complete research and algorithm development on relationships between land use and stream loading of ecologically important nutrient fractions in sub-watersheds and on nutrient cycling resulting from intense agricultural practices within small watershed basins and incorporate into the WMS.

5. Complete development and publish Abandoned Mine Lands (AML) restoration design Engineer Manual.

6. Complete development of handbook of tools and techniques for ecological restoration and management of urban streams and watersheds.

7. Develop and publish guidance document for restoring arid and semi-arid riparian ecosystems.

8. Develop and publish guidance document on suitability of small floodplain pools as habitat for fishes and amphibians.

9. Develop engineering methods to reduce negative biological effects of sedimentation.

10. Develop methods to establish best biological evaluation tools for measuring success of ecosystem restoration projects.

11. Demonstrate the relationship of geosensors to population level effects on benthic organisms.

12. Demonstrate role of thermal release energy on hydrophobic organic compounds in contaminated sediments.

13. Quantify relationships between sediment extracts and toxic response in bioassays.

14. Demonstrate genetic approaches to determine the origin of microbial pathogens in contaminated sediments.

15. Demonstrate the practicability of use of aquatic animal digestive fluid to extract toxic compounds from contaminated sediments.

APPROPRIATION TITLE: General Investigations, FY 2003

3. Research and Development

c. Environmental Technologies (continued)

FY 2002 ACCOMPLISHMENTS:

1. Developed assessment techniques for environmental restoration alternatives of urban streams and flood control channels and for controlling degradation in urbanized watersheds.

2. Developed and published guidance for managing stormwater in urban restoration projects.

3. Developed and published guidance on the effects of landscape ecology on water resource development activities and reservoir operations.

4. Published handbook of cumulative effects assessment tools and techniques for aquatic ecosystem management and restoration.

5. Developed habitat models for fish and amphibians in floodplain pools.

6. Developed templates for community index models for assessing aquatic ecosystem functions.

7. Published handbook of restoration & creation techniques for high gradient riverine wetlands.

8. Published guidance on the effects of levee gapping on fish habitat.

9. Published hydrogeomorphic (HGM) regional guidebook for depressional wetlands of Florida, for southwestern riverine wetlands, and for second order streams in central California.

10. Developed and published technical guidance on selection, establishment and planting of hardwood restoration sites in arid/semi-arid regions.

11. Completed research using geosensors to screen for toxic effects of contaminated sediments on marine/estuarine organisms and on the use of a toxicological challenge protocol to assess Poly Aromatic Hydrocarbon (PAH) bioaccumulation by aquatic organisms.

12. Completed research on the potential for bioavailability of hydrophobic organic compounds in contaminated sediments, on extraction of contaminated sediment fractions in relation to bioassay response, and on assessment of the human health risks of pathogens found in contaminated sediments.

APPROPRIATION TITLE: General Investigations, FY 2003

3. Research and Development

d. Infrastructure Engineering

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2003-2007) Program Cost	$28,000,000
Allocation Requested for FY 2003	3,440,000
Balance to Complete After 2003	24,560,000
Allocation for FY 2002	3,755,000
Change in FY 2003 from FY 2002	(315,000)
Average Annual Allocation for FY 1998-2002	5,103,000

JUSTIFICATION:

Most of the Corps' water resources infrastructure is nearing or surpassing its design life. Demands on the services provided by these facilities are increasing, and the condition of the infrastructure is deteriorating. Complete replacement is economically and environmentally prohibitive. Key concerns are:

- America's water resources infrastructure may not support future generations
- Our nation's waterway system may not be able to meet 21st century demands
- Retrofits have been performed individually without consideration of regional impact
- Sustainable repair and construction materials are needed to reduce depletion of raw materials from our Nation's natural resources
- Environmentally sustainable modifications to infrastructure and construction methods are needed to minimize damage to ecosystems
- Continued urbanization increases the flooding threat to our Nation's communities
- Many communities still lack adequate water resources and the management necessary for their sustained development

APPROPRIATION TITLE: General Investigations, FY 2003

3. Research and Development

d. Infrastructure Engineering (continued)

The Corps is responsible for 879 flood control projects, 442 lakes and reservoirs, and maintains 8,500 miles of levees. The Corps operates 235 navigation locks, 73 hydropower projects, and maintains 400 miles of coastal structures. The U.S. Marine Transportation System consists of over 300 ports, 1,000 harbor channels, and 25,000 miles of navigation channels, and is an integral part of both the U.S. economy and national security system. These are unique facilities whose failure would result in severe loss of life and have significant economic impacts.

The Nation must have a sustainable water resources infrastructure fully capable of supporting national requirements. Ensuring expected performance levels requires innovative technologies to extend the useful life of these facilities, reduce life-cycle costs, and minimize rebuilding or replacement, using ecologically low-impact procedures and environmentally responsible materials. The Infrastructure Engineering research area provides immediate and long-term solutions for these problems. The enabling technologies of structural and geotechnical engineering design, geological and earthquake engineering, materials science, and structural risk analysis are developed in this Infrastructure Engineering research area. These technologies provide crosscutting support to all Corps' Civil Works business programs.

FY 2003 ACTIVITY:

1. Development of and guidance for well-calibrated engineering risk analysis for individual dams, groups of dams, and dam safety investments:

- Revise procedures for applying risk analysis to the dam safety investment decision-making process of an individual dam based on FY02 findings
- Further develop portfolio risk analysis of groups of dams within a District, and then among all districts in a Division
- Develop risk analysis procedures for sorting among modification alternatives
- Determine feasibility of adapting Poisson-arrival probabilistic hazard event models to estimate annual probability of rare floods
- Evaluate applicability of rare flood risk technology in various hydro-meteorologic regions
- Validate simplified approach technology for uncertainty of dam stability caused by uplift pressures in foundation rock beneath dams
- Develop integration platform to connect framework, prioritizing, consequence, engineering vulnerability analysis, data warehouses, visualization, decision-making and risk analysis tools to feed data to emerging field office systems such as Enterprise GIS, Digital Project Notebook, and Common Delivery Frameworks being developed in the Geospatial area.

3. Research and Development

d. Infrastructure Engineering (continued)

2. Guidance for safe and durable, but also sustainable, infrastructure repair and construction materials, design, construction and application procedures:

- Develop adequate materials specifications for the improvement of concrete workability and testing methods
- Investigate causes of adverse material interactions
- Develop guidance for use of recycled and/or sustainable materials
- Improve analytical methods for analysis of deteriorated concrete
- Investigate the use of lithium as a remedial treatment for alkali-silica reaction
- Develop automated procedures for fracture fatigue calculations for steel hydraulic structures
- Develop guidelines for high-performance bushing materials for tainter gates and tainter-gate monitoring systems
- Develop an expert system for advanced materials for locks, dams, and hydroelectric machinery components
- Review guide specifications included in CEGS-09965 and develop criteria to incorporate industry specifications in the application of moisture-cure zinc primers
- Evaluate coatings applied to Corps of Engineers structures, and expand WEB site to demonstrate their performance
- Review guide specifications included in CEGS-009971 and develop criteria to establish limitations on recycling practices and on the application of adequate coatings whenever steel abrasives are used for fresh water hydraulic structures
- Develop context for environmentally supportive materials and methods of construction for sustainable infrastructure
- Examine alternative construction procedures for positive water seepage cut-offs that have less damage to the riverine ecosystem
- Expansion of the CASE website for effective technology transfer
- Release and distribution of PC-based software for soil-structure interaction
- Complete a sensitivity analysis study of NISA material parameters

3. Assure life-safety from earthquake damage to Corps' dams and reservoir control structures:

- Improve ground motion guidance from structural and geotechnical point of view, and develop and apply a PC-based earthquake ground motion analysis system for seismic rehabilitation problems
- Develop and assess retrofit solutions for seismically deficient intake towers, and evaluate multiple-support excitation effects on their seismic performance
- Review and evaluate existing criteria regarding seismic rehabilitation measures available for concrete dams (post-tensioning, crack grouting, earth backing, RCC backing and buttressing)
- Develop PC-based code and supporting guidance for analysis and evaluation of concrete dams retrofitted with post-tensioned anchors
- Develop simplified criteria for seismic analysis and evaluation of nonstructural components (gates, bulkheads, etc.) and secondary structural systems (bridge piers, etc.)
- Develop standard criteria and procedures for seismic analysis and evaluation of powerhouse structures
- Investigate and evaluate seismic remediation techniques for embankment dams
- Develop performance-based criteria for tolerable damage for embankment dams

APPROPRIATION TITLE: General Investigations, FY 2003

3. Research and Development

d. Infrastructure Engineering (continued)

FY 2002 ACCOMPLISHMENTS:

1. Developed guidance for well-calibrated engineering risk analysis for individual dams, groups of dams, and dam safety investments:

- Demonstrated beta-version procedures for risk assessment of individual and portfolio dam safety investments
- Developed procedure for prioritizing among dam-safety decisions
- Developed consequence model for incorporating loss of life in risk analysis
- Validated beta-version of spillway erosion risk analysis procedure
- Completed procedure for risk assessment of gates and equipment
- Developed hybrid empirical and analytical procedure for categorizing breaching mechanisms and quantifying probabilities of inadequate dam and levee performance

2. Guidance was developed for safe, durable but also sustainable infrastructure repair and construction materials, design, construction & application procedures:

- Developed guidance on selection of self-lubricating materials for heavily loaded components
- Evaluated underwater urethane paint systems and commercially available aluminum pigmented coatings (Guide Specification CEGS-09965)
- Investigated Class C fly ash as a potential sustainable cement
- Developed guidance for proportioning of low-shrinkage concrete
- Developed guidance on surface preparation and materials selection for over-coating lead-based paint
- Quantified the effects of soil pressures, wall friction, and moment reduction coefficients on the design of anchored sheet pile walls
- Conducted workshop on fracture fatigue for steel hydraulic structures, which represents a serious safety issue for lock and dam operations
- Completed automation of Load Resistance Factor Design (LRFD) procedures for tainter gates

APPROPRIATION TITLE: General Investigations, FY 2003

3. Research and Development

d. Infrastructure Engineering (continued)

3. Developed means to assure life-safety from earthquake damage to Corps' dams and reservoir control structures:

- Developed PC-based earthquake ground motion analysis system
- Completed cyclic physical model tests and revised design guidance for intake towers and outlet works for determination of ultimate capacity, failure mechanisms, and available ductility
- Developed PC-based code for performance evaluation and rehabilitation of lightly reinforced intake towers
- Developed and distributed PC-based code for dynamic structure-reservoir-foundation interaction for concrete dams
- Developed database of dam structural-response measurements including a collection of benchmark case studies to provide guidance for future seismic evaluations
- Provided technical guidance for field measurement and quantification of reservoir bottom absorption effects to allow their systematic incorporation in the seismic analysis of concrete dams
- Developed and distributed large-strain deformation code for embankment dams
- Completed research regarding a depth-related liquefaction/no liquefaction limit beneath large embankment dams

4. Developed predictive tools to improve geotechnical investigation, design, construction, and retrofitting of foundations and earth/rock structures:

- PC-version of STUBBS geotechnical analysis program transferred to users with new guidance for cost-effective application
- Analysis tool for emergency spillways in rock proven in field applications

Fundamental understanding of piping transitioned to Flood Damage Reduction

APPROPRIATION TITLE: General Investigations, FY 2003

3. Research and Development

e. Geospatial Technology

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2003-2007) Program Cost	$20,000,000
Allocation Requested for FY 2003	2,860,000
Balance to Complete after FY 2003	17,140,000
Allocation for FY 2002	1,530,000
Change in FY 2003 from FY 2002	1,330,000
Average Annual Allocation for FY 1998-2002	2,457,000

JUSTIFICATION:

The Geospatial Technologies Research Area comprises Survey and Mapping, Remote Sensing, and Geographic Information Systems (GIS). This area focuses on collection, management, analysis, and exploitation techniques for information tied to the earth's surface and subsurface (geospatial data). Typical project-derived digital data come from various sources, including bathymetric and topographic surveys, terrain digital elevation information, dredge and fill cuts, in-situ disposal sites, sub-bottom compositions, soil types, wetlands, land cover, endangered species and their habitat, stream and tide gages, cross sections, training structures, levees, dam deformation, HTRW sites, permits, piezometers, archeological sites, Corps projects, relief wells, damage from disasters, recovery missions, and many other sources. Data may be collected and analyzed for projects at specific sites or as part of systems: from subbasins to large river systems, from individual beaches to large coastal segments. These data support decision makers in all Corps' business program areas: navigation, flood and coastal storm damage reduction, hydropower, regulatory, environmental, emergency management, recreation, water supply, and work for others. Accurate and reliable geospatial data are required by each business program for the effective planning, design, construction, operation, maintenance, and rehabilitation of projects.

Annual expenditures for these data collection, analysis, and management average almost $200M, thus significant savings from more effective and efficient management of civil works projects will be realized through the use of new data collection and management technologies, data analysis, and data exploitation. Improved understanding of the behavior of large systems through basin-wide management approaches has the potential to significantly lower the cost of project design, construction, and management including dredging, beach nourishment, and dredged material placement. The program area balances tactical (short term/specific) and strategic (longer-term research needs not being addressed elsewhere) approaches to provide solutions to meet Corps' needs. To reduce costs a new framework approach to product delivery and enterprise approach to data are being developed. Examples of cost savings already realized include: (1) savings in the tens of millions of dollars annually through improved understanding of snowmelt hydrology, (2) $10M annually with Corps-developed differential GPS, enabling integration of differential techniques and differential networks throughout the Corps, (3) disaster recovery savings of over $3.6M through the innovative use of spatial data analysis in planning for cleanup after Hurricanes Andrew and Georges, and (4) savings of over $66K when GIS was used to manage the Beaver Lake Shoreline (Little Rock District). Other savings noted include more rapid data retrieval and analysis with production improvement approaching 2:1; more accurate (up-to-date) maps; ability to conduct systemic analysis as for the Channel Improvement Project (1300 miles of the Mississippi River); automated river chart production with improved cartographic appearance, accuracy, completeness, and currency; improved data retention and longer data life with reduced re-collection costs; increased data sharing with lower collection costs; and improved, more defensible decision making.

APPROPRIATION TITLE: General Investigations, FY 2003

3. Research and Development

e. Geospatial Technology (continued)

FY 2003 ACTIVITY:

1. Develop prototype approaches to electronic charting for inland and coastal navigation.

2. Initial development of a framework for common approaches to the delivery of science and technology (applications, models, and groups of related models) to Corps districts and divisions.

3. Evaluation of hydrographic survey systems and selection of test sites to improve hydrographic survey accuracy in areas with submerged aquatic vegetation.

4. Synthesize findings of Enterprise GIS (EGIS) approaches and provide recommendations of best practices for implementation of EGIS in the Corps.

5. Develop improved approaches for the collection of ground truth and methods to fuse LIDAR and multispectral image data for more effective wetlands delineation and mapping.

6. Develop guidelines for improved use of geospatial technologies in natural resource management.

7. Develop object-oriented data modeling tools to accurately interpolate meteorological parameters for use by hydrological models. Work includes temperature, orographic, elevation, and other effects.

8. Evaluate alternative multiscale spatial models enabling basin-wide planning and ecosystem studies.

9. Initial development of a rule-based watershed management and assessment tool providing decision makers support in integrating geospatial, modeled, and other pertinent information, comparison of alternatives, and evaluation of outcomes from selected management options.

10. Develop processing algorithms for delivery of LIDAR-created Digital Elevation Models (DEMs).

APPROPRIATION TITLE: General Investigations, FY 2003

3. Research and Development

e. Geospatial Technology (continued)

11. Improve watershed modeling capability through delivery of geospatially enabled hydrologic modeling system tools.

12. Develop an automated approach to the identification of river ice and ice fronts to mitigate the effects of ice jam flooding.

13. Initiate testing of transducers, techniques, and post processing algorithms for analysis of fluid mud properties and measurement of thickness above hard bottoms.

14. Develop and conduct initial testing of algorithms to merge topographic and bathymetric data while preserving the accuracy of all data sources.

15. Initial development of remote sensing and sampling techniques permitting more cost effective identification of plant communities.

16. Evaluate and report on best sensors for emergency operations according to mission and disaster type.

17. Initiate development of a Corps enterprise approach enabling analysis of geospatial and statistical data necessary for modeling, managing, and restoring watersheds.

18. Develop recommendations on the use of high spatial resolution multispectral imagery to identify invasive noxious wetland plant species.

19. Delivery of software for linkage and integration of laboratory data related to environmental analysis and restoration with commercial GIS tools.

20. Evaluate and demonstrate alternative approaches to modeling real estate data.

21. Assess Digital Elevation Model (DEM) requirements at Corps districts and trends in vertical and horizontal datum changes.

22. Develop object classes and properties for utilities as part of fostering more complete development of object models for geospatial data of importance to the Corps.

APPROPRIATION TITLE: General Investigations, FY 2003

3. Research and Development

e. Geospatial Technology (continued)

FY 2002 ACCOMPLISHMENTS:

1. Developed draft process for compiling CADD navigation chart data to Electronic Navigation Charts for major navigable waterways such as the Mississippi, Ohio, and other river systems.

2. Evaluated a new radar system for remote sensing of large spatial areas for determining the snow water equivalency and aerial distribution of snowpacks where terrain effects (forests/vegetation) mask signal interpretation for improved water control operations.

3. Assessed how to effectively utilize high-resolution digital (1m) and multi-spectral (4m) data for interpreting the performance/conditions of hydraulic structures after severe flow events and for use in natural resources studies.

4. Evaluated new/improved sensors for the Emergency Management functions that the COE performs in concert with FEMA, specifically looking at improving the damage estimates, reducing the time to obtain/analyze and transmit the information to the appropriate agencies.

5. Demonstrated the integration of a laboratory information system (chemical/biological/physical measurements for project studies) with a GIS system that displays/queries and reports the laboratory information in both spatial and time series output for project managers.

6. Reported on the use of geospatial technologies for natural resources management.

APPROPRIATION TITLE: General Investigations, FY 2003

3. Research and Development

e. Geospatial Technology (continued)

7. Reported on the capability of acoustic and ground-penetrating radars to detect objects, such as buried cables and wing dams, in navigable waterways.

8. Developed level four protocols/standards/software for seamless integration of model input/output data and other data using the commercial GIS software that will support all the Civil Works research areas as well as the Corps' business programs.

9. Completed development of software for integration of Corps real estate data (REMIS) into a GIS that is functionally compatible with other users in a District.

10. Developed new procedures and algorithms for evaluation of acoustic data to determine the location of the bottom and the location and depth of suspended sediments.

11. Developed Arc IMS Emergency Management applications to improve interactive map production for flooding.

12. Improved software tools (i.e., automated) for utilizing terrain digital elevation data that quickly delineates watershed boundaries, maps channel areas, and accurately portrays the ground slopes, especially in the areas where structures mask the "true" ground surface.

13. Began development of methods to use multi-beam acoustic systems for detection of rock and other navigation hazards.

14. Produced procedures and algorithms to use airborne laser and radar systems to accurately map flood plains and water control structures for failure prediction and emergency management.

15. Released software and documentation enabling improved cumulative impact analysis in wetland permitting.

APPROPRIATION TITLE: General Investigations, FY 2003

3. Research and Development

f. Integrated Technologies for Decision Making

SUMMARIZED FINANCIAL DATA

Estimated Five-Year (FY 2003-2007) Program Cost	$8,000,000
Allocation Requested for FY 2003	1,300,000
Balance to Complete after 2003	6,700,000
Allocation for FY 2002	810,000
Change in FY 2003 from FY 2002	490,000
Average Annual Allocation for FY 1998-2002	1,466,000

JUSTIFICATION:

The Integrated Technologies for Decision Making research area (formerly titled Decision Support Technologies) undertakes research and development (R&D) activities leading to improved evaluation methods and decision making for Civil Works planning, engineering, and operations. The area is presently composed of two R&D programs: Investment and Management Decision Making (formerly Decision Support Technologies) and Risk Analysis for Water Resources Investments. This R&D area is continuous, but its specific focus at any given time is dictated by problems and needs resulting from changes occasioned by legislative mandates and revisions in broad Federal guidance for water resources planning and management. Budget constraints, increased partner cost sharing, and public concern for project and system performance and reliability require the development of new methods and analytical techniques to prioritize and support planning, design, construction, and maintenance of Corps' projects. Integrated Technologies R&D provides Corps personnel with the appropriate framework and analytical tools which are key to assessing current and future water resources problems, evaluating alternative competing solutions, and making the most informed decisions.

3. Research and Development

f. Integrated Technologies for Decision Making (continued)

The Investment and Management Decision-Making research program is aimed at developing improvements to Civil Works water resources investment decision-making, project formulation capabilities, and to fulfill the need for analytical support tools for project delivery teams. Research conducted within this program is directed towards reducing study time and costs; increasing the completeness, efficiency, effectiveness and acceptability of water resources projects; and providing input for the development of consistent procedures applicable nationwide. The basic objectives of the program are to increase the knowledge and understanding of the physical, economic, social, and environmental relationships inherent in planning for the development of the Nation's water resources and, furthermore, to develop procedures for incorporating this knowledge into the planning process in a way that provides better professional, public, and governmental decisions. Tools include models, software, and technical guidance for economic and cost-effectiveness analysis, collaborative problem solving techniques, tradeoff, and multi-objective analysis to balance dissimilar values and valuing non-monetary outputs. Research outputs range from methods for facilitating local sponsor and stakeholder involvement in water resources planning to mathematical models and evaluation frameworks for formulating flood damage reduction projects, navigation improvement projects, and ecosystem restoration.

The Risk Analysis for Water Resources Investments research program objective is to develop procedures and frameworks that will enhance the overall performance of the Corps' civil works mission. In addition, the results from the program will enhance the Corps' flexibility in responding to existing and future engineering challenges. Risk analysis is increasingly used to aid in decisions involving natural and man-made hazards and where information contains significant uncertainties. Quantification of the underlying risk and uncertainty leads to more informed decisions on civil works investments and management of existing infrastructures. The research and development program includes the development and application of risk analysis techniques to a variety of issues and problems faced in the Corps' water resources planning, engineering, design, and operations. The program is aimed at addressing the crosscutting nature of water resource investment and management. Products from the program include technical guidance to quantify risks and associated uncertainties in the underlying contributing engineering, economic, and environmental quantities. The Risk Analysis program also develops models and software that combines these values to provide a complete assessment of engineering and economic performance in aid of decision making.

FY 2003 ACTIVITY:

Investment and Management Decision Making:

The program will continue to focus on improving and modernizing the project delivery and planning process along with development and update of plan formulation and economic evaluation procedures. Specific activities will include: (a) An assessment of local sponsor needs and expectations to facilitate improved public involvement and collaboration on water projects; (b) Integration of new planning and environmental models with economic and cost effectiveness models for river basin studies with a focus on improving procedures for linking environmental outputs to human services; (c) Develop evaluation framework for dam removal; (d) Make operational advances in ecological benefits evaluation; and (e) Develop criteria for formulation and evaluation of Multi-Purpose, Multi-Objective water resources projects. This will provide information, tools, and procedures to enable Corps planners to more effectively and systematically implement watershed studies, undertake more effective and efficient planning studies, and to improve partnerships, reduce conflict, and provide information to better evaluate effects of alternative plans: economic, environmental, and social.

3. Research and Development

f. Integrated Technologies for Decision Making (continued)

Risk Analysis for Water Resources Investments:

The program will continue the development of tools to improve decision making across all civil works areas. Activities in the program will include**:** (a) Complete the basic approach, framework, and training materials for using risk analysis to aid decisions on ecosystem investments; (b) Complete testing and fielding of software tools that integrate uncertainty in environmental models and parameters, hydrologic, and hydraulic variables; (c) Complete first-generation internet-based information center for Civil Works risk analysis; (c) Complete prototype risk analysis software tool for evaluating engineering and economic performance of deep draft navigation improvements; (d) Initiate modifications to hurricane and storm damage reduction software tool to meet emergency response and planning needs; (e) Initiate development of generalized major rehabilitation software tool for life-cycle analysis of infrastructure rehabilitation; (f) Initiate development of methods for estimating demand responsiveness to deep draft navigation improvements; (g) Initiate development and applications of methods to assess environmental problems and opportunities during major rehabilitation of Corps managed infrastructure; and (h) Begin development of linkages from vessel cost uncertainty estimation software to deep draft navigation evaluation software tool.

FY 2002 ACCOMPLISHMENTS:

Decision Support Technologies:

The program developed methods, data, and analytical tools to improve water resources investment decisions to include the following: (a) Developed a windows based cost-effectiveness evaluation software tool used by Corps and other agencies to evaluate non-monetary outputs of Corps projects; (b) Developed state-of-the-art technology transfer for ecosystem restoration formulation, evaluation and procedures; (c) Reviewed stakeholder/collaborative planning techniques; (d) Reviewed tradeoff analysis, factoring in monetary and non-monetary outputs and balancing of multiple non-monetary outputs; and (e) Developed planning handbooks of bio-engineering features for restoration projects. Training materials and workshops were outputs of research work units.

Risk Analysis for Water Resources Investments:

Accomplishments of the program were**:** (a) Completed development of interim approach, procedures, and training materials for quantifying overall engineering and economic risk of deep draft navigation investments; (b) Completed identification and quantification of uncertainty in models and parameters in hydraulic models for deep draft navigation; (c) Completed interim tools for quantifying uncertainty in economic-and planning-related variables in deep draft navigation evaluation; (d)

APPROPRIATION TITLE: General Investigations, FY 2003

3. Research and Development

f. Integrated Technologies for Decision Making (continued)

Completed development of analytical tools for evaluating residual flood risk and communication tools to assist in decision making on flood risk-reduction measures; (e) Completed initial environmental restoration risk-based analysis framework integrating uncertainty in environmental models and parameters, hydrologic, and hydraulic variables; (f) Completed second-phase identification and quantification of uncertainties in environmental models and parameters for environmental restoration; (g) Completed second phase of development of interim approach, procedures, and training materials for quantifying overall engineering and economic risk of deep draft navigation investments; (h) Completed second phase of identification and quantification of uncertainty in models and parameters in hydraulic models for deep draft navigation; (i) Completed first phase of development of interim tools for quantifying uncertainty in economic- and planning-related variables in deep draft navigation evaluation; and (j) Completed development of analytical tools for evaluating residual flood risk and communication tools to assist in decision making on flood risk-reduction measure.

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 2003

SUMMARY OF REMAINING ITEMS

CONSTRUCTION, GENERAL

	FY 2002 Allocation	FY 2003 Request	Increase (Decrease)
2. Navigation Projects			
a. Channels and Harbors			
(II) Projects Not Specifically Authorized By Congress (Sec. 107, P.L. 86-645)	15,000,000	7,000,000	(8,000,000)
(III) Mitigation of Shore Damages Attributable to Navigation Projects (Sec. 111, P.L. 90-483)	1,470,000	500,000	(970,000)
(IV) Dredged Material Disposal Facilities Program (sec. 101, P.L. 99-662)	5,000,000	9,000,000	4,000,000
c. Inland Waterways Users Board (Sec. 302, P.L. 99-662)			
(I) Board Expenses	45,000	45,000	0
(II) Corps Expenses	185,000	185,000	0
4. Shore Protection Projects			
a. Shoreline Erosion Control Development and Demonstration Program (Sec. 227, P.L. 104-303)	0	8,000,000	8,000,000
b. Projects Not Specifically Authorized by Congress (Sec. 103, P.L. 87-874)	5,000,000	5,000,000	0
5. Flood Control Projects			
a. Local Protection			
(II) Projects Not Specifically Authorized by Congress (Sec. 205, P.L. 80-858)	40,000,000	30,000,000	(10,000,000)
(III) Emergency Streambank and Shoreline Protection (Sec. 14, P.L. 79-526)	9,000,000	7,000,000	(2,000,000)
(IV) Snagging and Clearing (Sec. 208, P.L. 83-780)	1,000,000	1,000,000	0
6. Dam Safety and Seepage/Stability Correction Program	9,000,000	5,000,000	(4,000,000)

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 2003

SUMMARY OF REMAINING ITEMS

CONSTRUCTION, GENERAL

	FY 2002 Allocation	FY 2003 Request	Increase (Decrease)
10. Improvement of the Environment			
a. Project Modifications for Improvement of the Environment (Sec. 1135, P.L. 99-662)	20,400,000	16,000,000	(4,400,000)
b. Aquatic Ecosystem Restoration (Section 206, P.L. 104-303)	20,000,000	10,000,000	(10,000,000)
12. Aquatic Plant Control Program	4,000,000	3,000,000	(1,000,000)
13. Beneficial Uses of Dredged Material (Sec. 204, P.L. 102-580)	1,500,000	1,500,000	0
14. Employees Compensation (Payments to Department of Labor)	20,000,000	20,000,000	0
Total	151,600,000	123,230,000	(28,370,000)

APPROPRIATION TITLE: Construction, General, FY 2003

2. Navigation Projects

a. Channels and Harbors

(II) Projects not Specifically Authorized by Congress (Section 107, PL 86-645, as amended)

Allocation FY 2002	$15,000,000	Tentative Allocation FY 2003	$7,000,000

GENERAL: Section 107 of the River and Harbor Act of 1960 (PL 86-645), as amended, authorizes up to $35,000,000 annually for construction of navigation projects where such construction is not already specifically authorized by Congress. Projects are designed to provide the same complete navigation project that would be provided under regular authorization procedures. Each project selected must be economically justified and complete within itself. Federal cost participation cannot exceed $4,000,000 per project.

BUDGET REQUEST: The $7,000,000 requested for Fiscal Year 2003 is to continue the Section 107 program of development and construction of navigation projects at locations throughout the Nation. No funds are requested for new starts for FY 2003.

(III) Mitigation of Shore Damages Attributable to Navigation Projects (Section 111, PL 90-483, as amended)

Allocation FY 2002	$1,470,000	Tentative Allocation FY 2003	$500,000

GENERAL: Section 111 of the River and Harbor Act of 1968 (PL 90-483), as amended, authorizes the construction of projects for the prevention or mitigation of shore damages attributable to Federal navigation works. The cost of installation is cost shared in the same manner as the costs for the project causing the shore damage were shared. The cost of operation and maintenance is borne by the non-Federal sponsor. Projects first cost shall not exceed $5,000,000 without specific authorization by Congress.

BUDGET REQUEST: The $500,000 requested for Fiscal Year 2003 is to continue the Section 111 program of mitigation of shore damages attributable to Federal navigation works. The FY 2003 continuing program is funded commensurate with the regular construction program. No funds are requested for new starts for FY 2003.

APPROPRIATION TITLE: Construction, General, FY 2003

2. Navigation Projects

a. Channels and Harbors

(IV) Dredged Material Disposal Facilities Program

Allocation FY 2002	$5,000,000	Tentative Allocation FY 2003	$9,000,000

GENERAL: Section 101 of the Water Resources Development Act of 1986 (WRDA 86)(Public Law 99-662) as amended by Section 201 of the Water Resources Development Act of 1996 (WRDA 96)(Public Law 104-303) established consistent cost-sharing for construction of dredged material disposal facilities associated with Federal navigation projects, including disposal facilities for Federal project maintenance. The costs of constructing land-based and aquatic dredged material disposal facilities associated with the construction, operation, and maintenance of all Federal navigation harbors and inland harbors shall be considered costs of constructing a general navigation feature of the project and shall be shared in accordance with the procedures set forth in section 101(a) of WRDA 86.

BUDGET REQUEST: The $9,000,000 requested for Fiscal Year 2003 will be used for the Federal share of construction of applicable dredged material disposal facilities required for maintenance of existing projects, reimbursement of non-Federal sponsors for dredged material disposal facilities constructed by them in advance of Federal appropriations for such purpose, or fee payments to private entities for the use of privately owned dredged material disposal facilities if such a facility is the least cost alternative to dispose of dredged material. All costs for dredged material disposal facilities associated with project construction and maintenance will be reimbursed from the Harbor Maintenance Trust Fund.

APPROPRIATION TITLE: Construction, General, FY 2003

2. Navigation Projects

c. Inland Waterways Users Board

Allocation FY 2002	$230,000	Tentative Allocation FY 2003	$230,000

The $230,000 requested for Fiscal Year 2003 is to support, operations and expenses of the Inland Waterways Users Board, established by Section 302 of the Water Resources Development Act of 1986, (PL 99-662) and pursuant to the Board's charter, approved by the Secretary of the Army on March 3, 1987. The Board is an advisory committee subject to the requirements of the Federal Advisory Committee Act (PL 92-463).

(1) Funds in the amount of $45,000 are requested to meet the estimated expenses of the eleven member Board for its travel, meeting, and other needs to meet the requirements of the Charter.

(2) Funds in the amount of $185,000 are requested for Corps of Engineers expenses related to its responsibilities as an advisory committee sponsor. The Director of Civil Works has been designated Executive Director to the Board, and he has designated staff members to provide continuing Board support. Corps expenses will include personnel costs for administrative Board meeting support, including staff travel, clerical, printing, and related materials.

APPROPRIATION TITLE: Construction, General, FY 2003

4. Shore Protection Projects

a. Shoreline Erosion Control Development and Demonstration Program (Section 227, PL 104-303)

Allocation FY 2002	$0	Tentative Allocation FY 2003	$8,000,000

GENERAL. Section 227 of WRDA 96 authorized $21,000,000 for the Corps to conduct a Shoreline Erosion Control Development and Demonstration Program in coordination with state and local governments, academia, the private sector, and the Department of Agriculture, for the purpose of developing innovative techniques and technologies for controlling shoreline erosion, and demonstrate those innovations, and others that may exist within the private sector. To date, $6,550,000 of General Investigations funds have been used to develop specific program goals, establish criteria for selecting technologies and techniques to be tested, select sites for testing, and initiate construction of the first demonstration site at Cape May Point, New Jersey. Other demonstration projects are planned for sites in Texas, Michigan, Florida, California, Ohio, New York, and South Carolina. The techniques developed under this program are expected to yield up to $150,000,000 of savings in future budgets by reducing erosion and/or lengthening the time between renourishments for our existing shore protection/beach projects. The program is scheduled to complete in September 2005.

BUDGET REQUEST: The $8,000,000 requested for Fiscal Year 2003 will be used to plan, design, construct and monitor projects to demonstrate and evaluate these new shoreline protection technologies.

b. Projects Not Specifically Authorized by Congress (Section 103, PL 87-874, as amended)

Allocation FY 2002	$5,000,000	Tentative Allocation FY 2003	$5,000,000

GENERAL: Section 103 of the River and Harbor Act of 1962 (PL 87-874), as amended, authorizes up to $30,000,000 annually for construction of shore restoration and protection projects where not already specifically authorized by Congress. Projects under this special authority are formulated to provide the same complete project and same degree of protection provided under regular authorization procedures. Each project selected must be economically justified and complete within itself. Federal cost participation is limited to $3,000,000 per project.

BUDGET REQUEST: The $5,000,000 requested for Fiscal Year 2003 is to continue the Section 103 program of development and construction of hurricane and storm damage protection measures along the Nation's shorelines. No funds are requested for new starts for FY 2003.

APPROPRIATION TITLE: Construction, General, FY 2003

5. Flood Control Projects

a. Local Protection

(II) Projects Not Specifically Authorized by Congress (Section 205, PL 80-858, as amended)

Allocation FY 2002	$40,000,000	Tentative Allocation FY 2003	$30,000,000

GENERAL: Section 205 of the Flood Control Act of 1948 (PL 80-858), as amended, authorizes up to $40,000,000 annually for construction of flood control projects where such construction is not already specifically authorized by Congress. Projects are designed to provide the same complete project and same degree of protection provided under regular authorization procedures. Each project selected must be economically justified and complete within itself. Federal cost participation is limited to $7,000,000 per project.

BUDGET REQUEST: The $30,000,000 requested for Fiscal Year 2003 is to continue the Section 205 program of development and construction of flood damage prevention projects at locations throughout the Nation. No funds are requested for new starts for FY 2003.

(III) Emergency Streambank and Shoreline Protection (Section 14, PL 79-526, as amended)

Allocation FY 2002	$9,000,000	Tentative Allocation FY 2003	$7,000,000

GENERAL: Section 14 of the Flood Control Act of 1946 (PL 79-526), as amended, authorizes up to $15,000,000 annually for the construction of emergency bank protection works to prevent flood damages to highways, bridge approaches, public works, churches, hospitals, schools, and other non-profit public services. Each project selected must be economically justified and complete within itself. Federal participation under this authority is limited to a cost of not more than $1,000,000 at any single locality.

BUDGET REQUEST: The $7,000,000 requested for Fiscal Year 2003 is to continue the Section 14 program of emergency bank protection construction to prevent flood damages to highways, bridge approaches, and essential public facilities at locations throughout the Nation. No funds are requested for new starts for FY 2003.

APPROPRIATION TITLE: Construction, General, FY 2003

5. Flood Control Projects

a. Local Protection

(IV) Snagging and Clearing (Section 208, PL 83-780, as amended)

Allocation FY 2002	$1,000,000	Tentative Allocation FY 2003	$1,000,000

GENERAL: Section 208 of the Flood Control Act of 1954 (PL 83-780), as amended, authorizes up to $7,500,000 annually for removing accumulated snags and other debris, and clearing and straightening of the channels in navigable streams and tributaries thereof, when in the opinion of the Chief of Engineers such work is advisable in the interest of flood control. Federal cost participation under this authority is limited to a cost of not more than $500,000 for any single tributary. Each project selected must be economically justified and complete-within-itself.

BUDGET REQUEST: The $1,000,000 requested for Fiscal Year 2003 is to continue the Section 208 program of channel clearing in the interest of flood control at locations throughout the Nation. No funds are requested for new starts for FY 2003.

APPROPRIATION TITLE: Construction, General, FY 2003

6. Dam Safety and Seepage/Stability Correction Program

Allocation FY 2002	$9,000,000	Tentative Allocation FY 2003	$5,000,000

GENERAL: The Dam Safety and Seepage/Stability Correction Program provides for modification of completed Corps of Engineers dam projects. There are over 700 dam projects under Corps jurisdiction. While no Corps dams are in imminent danger of failure, some may have a higher dam-safety risk than originally anticipated based on new data or the likelihood of extremely large floods and seismic events. Seepage problems at USACE dams are usually related to increased reservoir levels above the previous pool of record at a project. Static instability generally involves movement that starts at a slow rate and could result in massive displacement of large volumes of material if not corrected. Seepage/stability correction projects are classified as major rehabilitations. Dam modification work is proceeding under existing authorities on projects where cost-effective risk reduction measures have been identified and approved.

BUDGET REQUEST: The $5,000,000 requested for Fiscal Year 2003 will be used to initiate Dam Safety and Seepage/Stability projects which may be approved during FY 2003 as a result of studies now underway.

APPROPRIATION TITLE: Construction, General, FY 2003

10. Improvement of the Environment

a. Project Modifications for Improvement of the Environment (Section 1135, PL 99-662, as amended)

Allocation FY 2002	$20,400,000	Tentative Allocation FY 2003	$16,000,000

GENERAL: Section 1135 of the Water Resources Development Act of 1986 (PL 99-662), as amended authorizes review of Corps water resources projects to determine the need for structural or operational modifications for the purpose of improving the quality or the environment in the public interest; to determine if the operation of such projects has contributed to the degradation of the quality of the environment; and to carry out a program of such modifications that are feasible and consistent with authorized project purposes. Up to $25,000,000 may be appropriated annually. The non-Federal share of the cost of any modifications will be 25 percent. Modifications with estimated Federal costs over $5,000,000 require specific Congressional authorization.

BUDGET REQUEST: The $16,000,000 requested for Fiscal Year 2003 is to continue the Section 1135 program of project modifications in the interest of improving the quality of the environment. No funds are requested for new starts for FY 2003.

b. Aquatic Ecosystem Restoration (Section 206, P.L. 104-303)

Allocation FY 2002	$19,000,000	Tentative Allocation FY 2003	$10,000,000

GENERAL: Section 206 of the Water Resources Development Act of 1996 authorizes up to $25,000,000 annually to carry out aquatic ecosystem restoration projects that will improve the quality of the environment, are in the public interest and are cost-effective. Non-Federal interests shall provide 35 percent of the cost of construction including provision of all lands, easements, rights-of-way, and necessary relocations. Non-Federal interests shall pay 100 percent of the cost of operation, maintenance, replacement and rehabilitation. Not more than $5,000,000 in Federal funds may be allocated to a project at a single locality.

BUDGET REQUEST: The $10,000,000 requested for Fiscal Year 2003 is to continue the Section 206 program of aquatic habitat restoration. No funds are requested for new starts for FY 2003.

12. Aquatic Plant Control (APC) Program

Allocation FY 2002	$4,000,000	Tentative Allocation FY 2003	$3,000,000

GENERAL: Aquatic plant control research is the nation's only Federally authorized research program for technology which is necessary to manage non-indigenous aquatic plant species. The objective of the research is to develop cost effective, environmentally compatible aquatic plant control technology, including biological, chemical, and integrated control methods. Research involving management strategies and applications and ecological factors are also being conducted. The control technology, management strategies and ecological understanding resulting from APC research forms the national base in the APC area, and is applied not only to control aquatic plant infestations in public waters nationwide, but is also essential to cost effective, environmentally compatible, aquatic plant control for the operation and maintenance of Corps projects. Nearly 3.0 million acres nationwide are now infested with problem aquatic plants. The Corps manages over 5.6 million surface acres of water at its reservoir projects alone, with significant additional acreage as part of navigation projects. Eurasian watermilfoil, hydrilla, alligatorweed, and other exotic species continue to expand from local infestations, many of which are interfering with navigation, flood control, hydropower production water quality and aquatic habitat. New colonies of objectionable aquatic plants continue to be found, such as hydrilla in the southeast and Eurasian watermilfoil in the Midwest. The direct application of technologies developed by research under the Aquatic Plant Control Program have resulted in the reduction of waterhycinth in the Gulf Coast States and California of over 3 million acres. In Louisiana alone, water hyacinth has been reduced from 1.5 million acres to about 200,000 acres. In addition, technology developed by the APC research program has resulted in a nationwide reduction of alligatorweed. Estimated annual savings produced by application of these APC research technologies are between $15,000,000 and $20,000,000 over the costs of conventional methods. The Aquatic Plant Control Program is authorized by Section 104 of the River and Harbor Act of 1958, (P.L. 85-500), as amended by Section 104 of the River and Harbor Act of 1962, (P.L. 87-874), Section 302 of the River and Harbor Act of 1965 (P.L. 89-298), and Sections 103, 105, and 941 of the Water Resources Development Act of 1986 (P.L. 99-662), Section 225 of the Water Resource Development Act of 1996 and Section 205 of the Water Resource Development Act of 1999 (P.L. 106-53). The APC program has an annual expenditure ceiling of $15,000,000.

BUDGET REQUEST: The $3,000,000 requested for Fiscal Year 2003 will be used for continued research efforts for aquatic plant control technologies to support the operation and maintenance of Corps projects. Efforts will focus on control methods for submersed aquatic plants (i.e. Eurasian watermilfoil, and hydrilla), with emphasis on biological control agents, chemicals, integrated control methods, management strategies and ecological factors that impact non-indigenous aquatic plant species . Research efforts are fully coordinated with other Federal, state, and local agencies to prevent duplication of effort and to ensure that research under this program is consistent with, and complementary to, the research efforts of others. The cost of research dealing with problems/outputs of regional or nationwide importance is 100 percent Federal.

APPROPRIATION TITLE: Construction, General, FY 2003

13. Beneficial Uses of Dredged Material (Section 204, P.L. 102-580, as amended)

Allocation FY 2002	$1,500,000	Tentative Allocation FY 2003	$1,500,000

GENERAL: Section 204 of the Water Resources Development Act of 1992 (Public Law 102-580) authorizes the Secretary of the Army to carry out projects for the protection, restoration, and creation of aquatic and ecologically related habitats, including wetlands, in connection with dredging for construction, operation, or maintenance by the Secretary of an authorized navigation project. Annual appropriations not to exceed $15,000,000 are authorized. Non-Federal interests are required to share in a minimum of 25 percent of the cost of each project including the provision of all required lands, easements, rights-of-way and relocations with the value of these contributions included in the 25 percent non-Federal share of the project and to pay 100 percent of the operation, maintenance, and replacement and rehabilitation cost of the wetland or other aquatic habitat area. The costs of the habitat protection, restoration or creation project are limited to costs which are in excess of those costs necessary to carry out the dredging for the authorized navigation project.

BUDGET REQUEST: The $1,500,000 requested for Fiscal Year 2003 is to continue a cost shared program for the protection, restoration and creation of aquatic and ecologically related habitats, including wetlands. No funds are requested for new starts for FY 2003.

APPROPRIATION TITLE: Construction, General, FY 2003

14. Employees Compensation (Payments to the Department of Labor)

Allocation FY 2002	$20,000,000	Tentative Allocation FY 2003	$20,000,000

GENERAL: Public Law 94-273, approved April 21, 1976, 5 USC 8147b, provides that each agency shall include in its annual budget estimates a request for an appropriation equal to costs previously paid from the Employees Compensation Fund on account of injury or death of employees or persons under the agency's jurisdiction.

BUDGET REQUEST: The $20,000,000 requested for Fiscal Year 2003 represents the total costs of benefits and other payments made from the Employees Compensation Fund during the period July 1, 1999, through June 30, 2000, due to injury or death of persons under the jurisdiction of the Corps of Engineers civil functions and also includes $800,000 for the investigation of fraudulent claims for workers' compensation benefits.

OPERATION AND MAINTENANCE, GENERAL

FISCAL YEARS 2002 - 2003 SUMMARY OF REMAINING ITEMS

Project Name	FY 2002 Appropriation	FY 2003 Program	02 - 03 Increase (Decrease)
1. Navigation Projects			
a. Channels and Harbors			
· Coastal Inlet Research Program	2,750	2,750	0
· Dredge Wheeler Ready Reserve	8,000	8,000	0
· Dredging Operations And Environmental Research (DOER)	7,000	6,755	(245)
· Dredging Operations Technical Support Program (DOTS)	1,500	1,545	45
· Monitoring Of Coastal Navigation Projects	1,700	1,750	50
2. Flood Damage Reduction			
· Cultural Resources (NAGPRA/Curation)	1,500	1,545	45
· Management Tools For O&M	500	0	(500)
· National Dam Safety Program	40	45	5
· National Dam Security Program	25	30	5
· National Lewis And Clark Commemoration Coorinator	300	310	10
· Recreation Management Support Program (RMSP)	1,500	1,545	45
· Water Operations Technical Support (WOTS)	700	725	25
4. Protection of Navigation			
· Aquatic Nuisance Control Research	700	725	25
· Dredging Data And Lock Performance Monitoring System	1,000	1,180	180
· Great Lakes Sediment Transport Models	1,000	1,000	0
· Protect, Clear And Straighten Channels (Sec. 3)	50	50	0
· Removal Of Sunken Vessels	500	500	0
· Waterborne Commerce Statistics	4,000	4,745	745
· Harbor Maintenance Fee Data Collection	575	675	100
· Inland Waterway Navigation Charts	4,000	4,120	120
5. National Emergency Preparedness Program (NEPP)	4,000	4,120	120
6. Project Operations Support			
· Automated Budget System	0	285	285
· Earthquake Hazards Reduction Program	500	300	(200)
· Performance Based Budgeting Support Program	415	815	400
· Regional Sediment Mngt Demonstration Program	1,500	1,545	45
· Reliability Models Program For Major Rehabilitation	675	675	0
7. Facility Protection	0	64,000	64,000
Total Remaining Items	**44,430**	**109,735**	**65,305**

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

1. NAVIGATION

a. Channels and Harbors

Coastal Inlets Research Program

SUMMARIZED FINANCIAL DATA:

Estimated Twelve-Year (FY 1994-2005) Program Cost	26,000,000
Allocation for FY 2002	2,750,000
Allocation Requested for FY 2003	**2,750,000**
Increase of FY 2003 from FY 2002	0
Balance to Complete after FY 2003	5,000,000

JUSTIFICATION:

Experience shows that the Corps of Engineers will expend an estimated $8 to $10 billion over the next 25 years at the more than 150 tidal inlets with existing Federal navigation projects to maintain, modify, and create navigation channels and structures, and to mitigate damages to adjacent beaches. In addition, the national "2020" plan for deeper and wider channels to accommodate the next class of vessels brings great uncertainty in prediction of maintenance requirements. Political, engineering, and demographic factors may increase costs. The public perception, right or wrong, that Federal activities at inlets cause adverse response at adjacent beaches may require additional, expensive mitigation. Public sensitivity to current maintenance practices, where dredged material is placed in offshore disposal areas, may result in requirements for more nearshore placements of maintenance materials to benefit adjacent beaches. Inlets are the primary conduits for the transport of environmental constituents between bays and the open ocean, and the Corps may be constrained from performing present activities unless it can make accurate predictions of inlet response, and thus environmental response, to such activities.

Little research to develop cost-reducing technology has been directed at coastal inlets. The Coastal Navigation and Storm-Damage Reduction Research Program, funded under the base General Investigations R&D Program, has studied some aspects of coastal inlets, particularly the development of scour at structures placed at inlets and the movement of sediment in and near inlets. However, these studies are insufficient in funding, scope, and content to satisfy the design and maintenance needs of the Corps of Engineers relative to coastal inlets. Therefore, the Coastal Inlets Research Program was initiated in FY 1994 to address the special needs of the Corps in this area.

The Coastal Inlets Research Program is a fixed-length program to increase Corps capabilities to cost-effectively design and maintain the more than 150 inlet projects which comprise the bulk of coastal operations and maintenance (O&M) expenditures. Because of their complex nature, the behavior of inlets is poorly understood. This has resulted in the Corps spending more of its O&M budget than necessary to maintain inlet projects. The Coastal Inlets Research Program will study functional aspects of inlets such as their short- and long-term behavior and their response to waves, tides, currents, and man-made changes, given their geologic makeup. As inlet behavior becomes better understood, sophisticated tools for management of inlets for navigation projects, such as models and empirical relationships, will become available. These new tools will lead to more efficient, cost effective designs that will reduce O&M requirements and, consequently, costs.

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

FY 2003 ACTIVITY:

a. Transition Coastal Inlets Research Program R&D to deep-draft channels in support of Corps projects nation-wide with aim of developing tools for predicting dredging requirements at modified channels, including evaluation of advance dredging, to meet objective of reducing associated O&M costs through better design, practice, and prediction.

b. Collect data and validate the Inlet Modeling System, scour model, and morphology change models at deep-draft channels, including Cape Fear, NC; Humboldt Bay Entrance, CA; and Grays Harbor, WA.

c. Begin major R&D effort to implement state-of-the art predictive formulas for sediment transport under waves and currents, including geomorphic constraints such as equilibrium volumes, equilibrium natural and dredged channel slopes, and critical shear stresses to bound the non-linear calculations.

d. Perform physical modeling studies on innovative jetty design to reduce dredging costs and improve navigation safety at deep-draft entrance channels.

e. Develop an inlets database encompassing all Federally maintained and major non-federal inlets as first stage of an empirically based decision-support tool that will also be populated with calculated and measured waves and tidal currents at major sites.

f. Extend the long-term morphology modeling system newly developed in the Coastal Inlets Research Program to include the adjacent beaches, navigation channel, and flood shoal together with the ebb shoal. Validate and release the model to the public.

g. Acquire field data at inlet jetties to understand the beach and jetty interaction through rip currents, developing a quantitative predictive method for rip current sediment transport.

h. Conduct investigations at tidal river mouths to include river processes in developed technology.

i. Conduct comprehensive technology-transfer development of PC interfaces and conduct workshops on all coasts of the U.S. to provide training to Corps personnel, private industry, and universities on techniques and models developed in the Coastal Inlets Research Program.

j. Develop educational materials about coastal processes, inlet processes, and dredging for the lay public and schools at all levels.

FY 2002 ACCOMPLISHMENTS:

a. Developed a new quantitative model of the volume change of inlet features such as ebb shoals and flood shoals, and validated the model at Ocean City Inlet, MD, and Shinnecock Inlet, NY. This technology allowed predictions to be made in support of Corps navigation projects that previously were beyond capability, accounting for the long-term (order of 100 years) evolution of inlets.

b. Extended a physical-processes based automated sediment budget system for management of inlets and adjacent beaches to include GIS features and connections to regional sediment management methodologies. The extended system was released Corps wide and to consulting companies and academia.

c. Completed R&D and interface for the Steering Module in the SMS interface, allowing automated coupling of tidal circulation and wave models to account for the wave-current and current-wave interactions. The Steering Module plays a central role for integrated modeling for field use to calculate tidal circulation, waves (with wave-current interaction), and sediment transport at high resolution. This modeling system allows assessment of jetty modifications, channel infilling, and channel alignment for reduction of dredging and improved navigation safety. Successful evaluations were conducted at Grays Harbor, WA; Willapa Bay, WA; and Ocean City Inlet, MD.

d. Developed and verified a numerical model to predict scour for regions characterized by local flow curvature, flow separation, entrainment, and flow interaction with inlet structures. Applied to Matagorda Ship Channel, TX; Ventura Harbor, CA; and Shinnecock Inlet, NY. Model is released to public through the worldwide web.

e. Continued to develop a web-based tutorial and handbook on coastal inlets called “Inlets Online” that addresses needs from the professional engineering and science level to college and high school education. Added several hundred photographs of inlets, glossary of terms, and several case studies for all four coasts of the U.S.

f. Developed a neural-network based data-gap filling utility with predictive capability in support of field measurement and long-term simulations of water level and current.

g. Conducted a virtual workshop with forum-question capability on the worldwide web; a technology-transfer workshop in Florida for 60 Corps, consulting companies, and university staff members; and held a 3-day seminar with graduate students and faculty from 12 universities who are involved with Coastal Inlets Research Program activities.

h. Supported Corps districts in addressing concerns on national applicability at specific inlets. These included implementation of a new jetty termination concept at Grays Harbor, WA, and sand management prediction at Shinnecock Inlet, NY, for which periodic mining of the flood shoal was demonstrated to be a competitive and favorable alternative for the total inlet sediment system.

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

1. NAVIGATION

a. Channels and Harbors

Dredge WHEELER Ready Reserve

SUMMARIZED FINANCIAL DATA

Estimated Annual Cost of Continuing Program	$8,000,000
Allocation for FY 2001	8,000,000
Allocation for FY 2002	8,000,000
Allocation Requested for FY 2003	**8,000,000**
Increase of FY 2003 from FY 2002	0

JUSTIFICATION: The Water Resources Development Act of 1996 (WRDA 96), Section 237. HOPPER DREDGES, contained a provision requiring the Corps hopper dredge WHEELER to be placed in a ready reserve status. The section requires that no individual project funds may be used to fund the dredge in its ready reserve status unless the dredge is specifically used in conjunction with a project. Previously the costs for operation of the WHEELER have been reimbursed from project funds from the Operations and Maintenance General appropriation, and subsequently charged to the Harbor Maintenance Trust Fund account as eligible navigation costs subject to reimbursement. In FY 98, the WHEELER was placed in a ready reserve status as required by the above referenced section of WRDA 96. Operations and Maintenance, General funds were used to fund the dredge, when it was not performing either emergency dredging or training exercises on individual projects in its capacity as a backstop hopper dredge.

APPLICATION: The hopper dredge WHEELER, in a ready reserve status, is required to be able to perform emergency dredging work, but may not be assigned any scheduled hopper dredging work. The dredge may be placed in an active status in order to perform work that private industry fails to submit a responsive or responsible bid for advertised dredging, or where industry has failed to perform under an existing contract. In light of this criteria, the WHEELER is being kept at the dock, with sufficient crew to respond to any unforeseen requirement within 72 hours, and be able to work for approximately 3 continuous weeks. The dredge is being maintained in a fully operational state and periodically will perform routine dredging operations to test equipment and keep the crew trained and prepared. The WHEELER performs approximately 55 days of training during the year. The WHEELER's operations cost for training days are charged to the project and not included in the requested amount, since maintenance dredging is performed during the exercise. In every year since being placed on Ready Reserve, the WHEELER was called out to perform urgent dredging to assist industry dredges in restoring navigation channels and waterways.

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

1. NAVIGATION

a. Channels and Harbors

Dredging Operations and Environmental Research (DOER) Program

SUMMARIZED FINANCIAL DATA:

Estimated Ten-Year (FY 1997-2006) Program Cost	$ 48,000,000
Allocation for FY 2002	7,000,000
Allocation Requested for FY 2003	**6,755,000**
Increase of FY 2003 over FY 2002	245,000
Balance to Complete after FY 2003	1,855,000

JUSTIFICATION: The last comprehensive research effort on contaminated sediments and dredged material management was completed in 1978 under P.L. 91-611. The Water Resources Development Acts of 1986, 1988, 1990, 1992, 1996, and 1999 contained provisions addressing contaminated sediments in navigation channels, dredged material management, and beneficial uses. Contaminant detection limits are now so low that sub-trace levels of toxic substances are identified. High profile contaminants such as dioxin continue to plague numerous Federal and permitted dredging projects. Traditional upland disposal areas have reached or are reaching capacity and are becoming scarce. Aquatic placement is under increased scrutiny and litigation with correspondingly increased costs. The continued economic viability and national defense of the Nation will depend upon our ability to remove, manage and beneficially reuse dredged material in a cost-effective and environmentally responsible manner.

The DOER Program is an integral and highly beneficial component of the Corps navigation dredging and environmental protection missions. Dredging and disposal must be accomplished within a climate of increased dredging workload, fewer placement sites, environmental constraints, and decreasing fiscal and manpower resources. Balancing environmental protection with critical economic needs while accomplishing dredging activities is a major challenge.

DOER products are designed to address issues impacting our ability to maintain a safe, reliable, environmentally sustainable and economically efficient navigation system. The program has validated candidate-screening methods for high profile contaminants that will significantly reduce testing costs at virtually all harbors. Methods for reuse of marginally contaminated sediments from upland disposal areas for beneficial purposes are key components of the program that will increase valuable capacity in traditional upland areas. Instrumentation for monitoring of dredges and the dredging process will improve efficiency in contracting and help meet environmental compliance obligations under the law. Assuring that seasonal restrictions on dredging are valid and technically justified will balance demands for lower costs, safety, and contractual efficiency while remaining sensitive to the needs of our ecological resources. Nearshore placement of suitable dredged material for maximum economic and environmental benefits is being demonstrated. Integration of economic and ecological risk factors with human health and ecological risk screening tools are major components of the DOER Program.

The DOER Program is producing technology that addresses operational, economic, and environmental risks of the Corps dredging program and will be conducted in full coordination and cooperation with other appropriate agencies and offices such as: Environmental Protection Agency, National Marine Fisheries Service, US Fish and Wildlife Service, and state natural resource managers. Aggressive technology transfer and technology application will ensure that research products are integrated into decision making at Corps projects and made available to port authorities and other navigation project sponsors.

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

Research is performed in six areas to address the navigation dredging and environmental protection mission. Research area products are designed to address issues impacting our ability to maintain a safe, reliable, economically and environmentally sustainable efficient navigation system. These areas are:

Contaminated Sediment characterization, Management, Treatment, and reuse (reduce costs, increase options)
Dredge Instrumentation to Improve Efficiency (includes contract and environmental compliance)
Environmentally Sound Nearshore/Aquatic Placement of Dredged Material (in coastal, estuarine, and river waters)
Effective Environmental Windows for Dredging Operations (assure environmental sensitivity based on facts)
Cost-effective Application of Innovative Technologies (includes contracting and other dredging activities)
Environmental and Human Health Risk Assessment and Management for Dredged Sediments (factors economics, engineering, and ecological/human health risk).

The DOER Program is designed to produce a significant return on investment to the Corps dredging program. Benefits include environmental quality improvements through application of innovative technologies; cost-effective compliance with regulatory requirements for identifying, containing and reusing contaminated sediments; technology for beneficially placing dredged material in the nearshore or offshore zone; greater flexibility in dredging in sensitive ecological areas; and implementation of risk-based decision making.

MAJOR ACCOMPLISHMENTS OF THE FY 2002 PROGRAM:

The Nearshore Placement of Mixed Sediments research was field validated and when coupled with a knowledge of the effects of chronic turbidity on fishery resources in the nearshore zone will provide information resource agencies can use to allow nearshore disposal of mixed grain sediments with a positive environmental effect.

Environmental windows (seasonal restrictions) negatively affect more than 80 % of Civil Works navigation dredging projects. In conjunction with the National Research council, guidance was prepared reflecting findings of various categories of impact as well as operational guidelines for negotiation of objectively determined windows with State and Federal natural resource agencies.

Guidance was developed on bioremediation of contaminated sediment in traditional Confined Disposal Facilities (CDFs) for beneficial reuse of the dredged material. Coupled with solids separation for contaminant removal, phyto-reclamation of contaminants and treatment technologies, these are powerful tools in managing existing CDFs for beneficial reuse and extending the life of a CDF.

Completed development of PC-based human health and ecological risk assessment tool to provide decision support for dredged material disposal and management alternatives.

Innovative (off the shelf) technologies that can be applied to Corps navigation projects was demonstrated at several locations. Alternatives to traditional dredging will be evaluated to determine the feasibility of extending periods between required channel maintenance. Innovative dredging and placement equipment, operations, and management techniques that will reduce costs, take less time, and are environmentally friendly are high priorities (e.g., silt wing and super dust pan dredges).

Improvements in instrumentation ("Silent Inspector" for mechanical dredges) were developed for quality control and performance. This supplements more costly inspection and is "real time." This increases flexibility in scheduling inspectors and aids in the incorporation of detailed performance measures into contracting instruments.

MAJOR FEATURES OF THE FY 2003 PROGRAM:

Guidelines for the environmentally acceptable methods for aquatic placement of mixed (fine and coarse grained) sediments will be provided, along with a database of dredged material geotechnical properties that can be used for modeling and related design. The initial release of improved models for predicting sediment resuspension at different dredges will be completed.

Complete research on field validation of chronic/sublethal testing, CDF effluent treatment, manufactured soil, biomarker analyses, runoff test, environmental effects in CDF's and biomarker analyses.

Environmental windows research will emphasize collaborative interagency studies of physical monitoring of suspended and settled sediments and associated effects on sensitive biota in support of science-based determination of windows for effective protection while maintaining necessary navigation in an economically efficient manner.

Complete risk assessment PC based decision support tools for all environments for rapid automated field use and complete theoretical bioaccumulation potential uncertainty analyses.

Innovative (off the shelf) technologies that can be applied to Corps navigation projects will be pursued from all quarters. Alternatives to traditional dredging will be evaluated to determine the feasibility of extending periods between required channel maintenance. Innovative dredging and placement equipment, operations, and management techniques that will reduce costs, take less time, and are environmentally friendly will be high priorities.

Instrumentation research will be initiated on developing improved sensors to measure dredged material loads removed by hopper dredges, and silent inspection for scows and barges will be completed.

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

1. NAVIGATION

a. Channels and Harbors

Dredging Operations Technical Support (DOTS) Program

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	1,545,000
Allocation for FY 2002	$1,500,000
Allocation Requested for FY 2003	**1,545,000**
Increase of FY 2003 from FY 2002	45,000

JUSTIFICATION: Maintaining the nation's navigation projects requires compliance with numerous complex environmental statutes and Presidential Executive Orders. Compliance with regulations using state-of-the-art ecotoxicological assessments is required. The Dredging Operations Technical Support (DOTS) Program fosters the one-door-to-the-Corps concept through providing comprehensive and interdisciplinary technology transfer, technology application, and necessary training at all Corps navigation dredging projects. DOTS is managed from a centralized program to maximize cost effectiveness and implement National policies, laws, and complex technical requirements on a consistent basis. The DOTS Program focuses on application of state-of-the-art technology and research results to field problems. Emerging scientific approaches sometimes cause uncertainty in administration of the Corps navigation dredging program. DOTS provides a consistent technology base and ready response to technical issues with technology transfer capability and generic technology application to other projects with similar problems. Short-term work efforts to address generic Corps-wide technical problems for maintaining navigable waterways are major features of the DOTS Program. Technology transfer of new and emerging techniques for application at Corps navigation maintenance projects is an important DOTS activity. In response to new research results and continuing staff reductions the DOTS program will continue to expand to provide technology transfer to all O&M navigation projects.

PROPOSED PROGRAM FOR FY 2003 Special emphasis will be placed on transfer of technology developed by the Corps and others that deal with maintenance and management of navigation structures and navigable waterways. Typical technology transfer topics include management of contaminated dredged material; application of innovative risk-based technologies to contaminated dredged material; maintenance of coastal inlets and adjacent shorelines; shoreline stabilization and river training activities; assessment and management protocols for beneficial uses of dredged material; channel realignments; protection of endangered species; equipment selection; rational application of dredged windows; lock and dam maintenance needs; channel and harbor maintenance activities; and ship simulation activities.

Training of Corps staff and others who have regulatory authority over Corps navigation maintenance activities will be conducted on the latest environmental and engineering techniques associated with maintaining navigable waterways, i.e., dredging and dredged material disposal and coastal and inland channel maintenance needs; water quality and related aquatic environmental issues; technology transfer of new and emerging techniques used to determine compliance with environmental protection statutes regarding management of dredged material and other features of navigation projects; development and preparation of manuals jointly with EPA that implement the inland and ocean disposal programs; and short-term work efforts to address generic Corps-wide technical dredging and dredging material management problems and other technical problems at navigation projects.

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

1. NAVIGATION

a. Channels and Harbors

Monitoring of Completed Navigation Projects

SUMMARIZED FINANCIAL DATA

Estimated Five-Year (FY2002-2007) Program Cost	$10,000,000
Allocation for FY 2002	1,700,000
Allocation Requested for FY 2003	**1,750,000**
Increase of FY 2003 over FY 2002	50,000
Balance to Complete Program after 2003	4,000,000

JUSTIFICATION: The Army Corps of Engineers operates and maintains more than 800 navigation projects encompassing more than 25,000 miles of waterways. The Corps needs a national program to identify the best navigation project practices and use them to improve all navigation projects' performance. Optimizing projects' performance requires that they be monitored, evaluated against preconstruction projections and present needs, and the lessons learned translated into proactive management guidance for Corps Districts. Information gained from monitoring navigation projects, including changes in sediment transport, water levels, currents, waves, flushing, and other hydraulic phenomena with associated environmental impacts, will be used to verify design expectations, determine benefits, and identify operational and maintenance efficiencies. Information collected from monitored navigation projects can improve projects' performance and optimize opportunities for environmental enhancement. Information collected and analyzed on a national basis documents successful designs, disseminates lessons learned on projects with problems, and provides upgraded field guidance that will help reduce life-cycle costs on a national scale.

SCOPE: A selective and intensive monitoring of Civil Works navigation projects is executed to acquire information to improve project purpose attainment, design procedures, construction methods, and operation and maintenance (O&M) techniques. Both shallow- and deep-draft navigation projects located in rivers, reservoirs, lakes, estuaries, and the coastal zone are included in this program. Projects that will potentially provide maximum life-cycle cost savings are identified and those that best address high-priority cost savings are selected for monitoring and evaluation. Monitoring plans are developed jointly by Corps of Engineers Districts and the US Army Engineer Research and Development Center (formerly Waterways Experiment Station). They consist of either a comprehensive detailed survey to verify post-construction conditions on a one-time basis or a repetitive collection of field data. The intensive data are analyzed and the results compared to the pre-construction predictions to verify or upgrade existing design guidance for minimizing O&M cost and assuring project benefits. The analyses include structural, topographic, and hydrodynamic responses and intercomparisons of projects when applicable. Reductions in program funding in recent years have prevented starting new monitoring projects, including upper Mississippi River training structures and navigation project features at Tedious River, MD, and Tom Bevill Lock and Dam, AL.

FY 2002 ACCOMPLISHMENTS: The Ocean Dredged Material Disposal Site (ODMDS) at the mouth of the Columbia River, WA/OR was evaluated for the causes of disposed dredge material extending beyond the designated ODMDS limits and adverse wave conditions believed to be the result of shoaling over the disposal mound. Monitoring the performance of CORE-LOC armor units at Ventura Harbor breakwater, CA, was completed. The Morro Bay, CA, entrance channel physical and numerical model predictions of hydrodynamic conditions and sedimentation phenomena were validated for use as design tools. Monitoring continued at Marseilles Lock and Dam, IL, to determine if the remote operating system is maintaining pool levels within tolerances, to determine if the submersible tainter gates

are effective in passing ice, and to quantify vibration conditions for flows over and under the gates. Monitoring continued at Boston Harbor, MA, to determine if confined aquatic disposal cells (located within the existing Federal channel limits) are a viable alternative for placement of dredged maintenance material not suitable for unconfined ocean disposal. Monitoring of upper Mississippi River training structures was initiated to study optimal riverine hydrodynamics and sediment transport processes for minimizing dredging. Monitoring of the St. Paul Harbor breakwater, AK, also was completed. Multiple technical reports, including one on stone degradation on coastal structures and another on monitoring of Barnegat Inlet, NJ, were published. Additionally, a Coastal Engineering Technical Note summarizing lessons learned from completed projects was published and disseminated to the field through meetings, mailings, and web-based distribution. Reductions in required funding in previous years adversely impacted the project monitoring. Had funds been available, monitoring results from the upper Mississippi River training structures would currently be available. In addition, monitoring of navigation improvements at Tedious Creek, MD, and Tom Bevill Lock and Dam, AL, would have been initiated.

FY 2003 ACTIVITIES: Additional Coastal and Hydraulic Engineering Technical Notes will be published and disseminated to the field immediately with improved/corrected design guidance. Technical Reports regarding findings and conclusions of periodic inspections of coastal structures previously monitored by this program will be published. The periodic data sets will be used to improve understanding in the design, construction, and maintenance of both existing and future structural projects, and will help avoid past design deficiencies that failed and/or resulted in high maintenance projects. Concrete armor units (dolos, tribars, etc) protecting the Kahului and Nawiliwili Harbor breakwaters, HI, will be monitored and evaluated. An analysis of bathymetric data at Morro Bay entrance channel, CA, will be completed to understand the mechanisms by which filling of the entrance channel occurs so that preventive measures can be formulated. This study will also validate the accuracy of the design procedures used in determining the sediment budget at this site, results of which will then be extrapolated to other sites. Conclusions will be formulated from monitoring of Marseilles Lock and Dam, IL, and Boston Harbor, MA. Monitoring of Tedious Creek, MD, will be initiated to validate expected hydrodynamic, sedimentation, and geotechnical conditions at the site. The Tom Bevill Lock and Dam, AL, will be monitored to evaluate river flows in the upper lock approach and alternatives that may alleviate adverse crosscurrent conditions. Corps of Engineers field offices will nominate additional monitoring sites that continue the process of improving project performance and realizing cost savings.

COORDINATION: Coordination between the Corps of Engineers and other Federal, state, and local agencies is essential for proper accomplishment of this program. In addition to satisfying Corps of Engineers requirements, the data are made available through publications and will be of value to local, State, and other Federal agencies tasked with the development and implementation of regional coastal and inland navigation management policies. Results are communicated to member agencies of the Marine Transportation System (MTS) committees.

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

2. FLOOD CONTROL.

a. Réservoirs.

Cultural Resources (NAGPRA/Curation)

SUMMARIZED FINANCIAL DATA

Estimated Total (FY 1994 - 2010) Program cost	$44,000,000
Allocation Requested for FY 2002	1,500,000
Allocation Requested for FY 2003	**1,545,000**
Increase of FY 2003 over FY 2002	45,000
Balance to complete after FY 2003	37,500,000

JUSTIFICATION: The Native American Graves Protection and Repatriation Act (NAGPRA) contains data gathering, reporting, consultation, and permitting provisions that have near-term and long-term implications for Civil Works programs and projects. A Mandatory Center of Expertise (MCX), located at the St. Louis District, has been established to provide overall management of the Corps NAGPRA programs and will serve as an information source and a centralized base for curation compliance and contracting. The MCX will facilitate the assurance of consistent nationwide program implementation and operation. In addition, the Corps is responsible for the curation of 46,255 cubic feet of artifacts collected from its water resources development projects and 3,511 linear feet of associated records. Curation of these materials, the largest volume of all federal agencies responsible for this activity, is required by a number of public laws. Corps collections represent over 80% of the total DoD collections.

BACKGROUND: Enacted on 16 November 1990, NAGPRA is a complex piece of legislation that addresses the recovery, treatment, and repatriation of Native American and Native Hawaiian cultural items by Federal agencies and museums. As defined by the Act, cultural items are human remains, associated funerary objects, unassociated funerary objects, sacred objects, and objects of cultural patrimony. In FY 1994, the Corps of Engineers began the process of inventorying human remains and associated funerary objects and completing summaries as mandated by the legislation. In addition, the Corps has been responsible for curation of cultural resource materials collected from its water resources development projects. These collections are extensive and are located at a variety of curation facilities across the nation. The costs are to accomplish NAGPRA work and to fund MCX curation support to the districts. The MCX, in providing NAGPRA inventories, will assist in establishing the extent of Corps holdings. Associated with efforts to complete NAGPRA, the MCX is beginning the process of effectively managing the Corps curation efforts.

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

MAJOR FEATURES IN THE FY 2003 PROGRAM: The MCX and certain Corps field offices will continue the process of inventorying Native American and Native Hawaiian human remains and associated funerary objects and complete summaries of unassociated funerary objects, sacred objects, and objects of cultural patrimony as mandated by the legislation. Information will be made available to interested individuals and groups through notices in the Federal Register. Through MCX provided funding, districts will continue to be engaged in formal consultation with tribes and organizations for the legislated purpose of repatriating cultural objects for which there are legitimate claims. The MCX will continue to fulfill its chartered activities in support of other military services and DoD as well as serving in the pivotal role of assisting in the development and implementation of an agency-wide, long-term plan for the curation of USACE archeological collections (heritage assets). The MCX will also continue to work closely with USACE commands on the implementation of final guidelines and procedures for field collection of archeological materials and the long-term treatment of those collections. In this regard, the MCX will act as a source of expertise for processing and rehabilitation of USACE collections. Finally, the MCX will provide leadership in the development of a training curriculum on the treatment of heritage assets and working in consultation with all stakeholders, take initial steps to make this training available to USACE and other appropriate DoD managers and decision makers.

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

2. FLOOD CONTROL.

a. Reservoirs.

National Dam Safety Program

SUMMARIZED FINANCIAL DATA

Estimated Annual Cost for Continuing Program	$45,000
Allocations for FY 2002	40,000
Allocation requested for FY 2003	**45,000**
Increase of FY 2003 over FY 2002	5,000

JUSTIFICATION: The *Federal Guidelines for Dam Safety* provides a framework for the safe construction, operation, and maintenance of USACE dams. Dams in the United States must be constructed, operated, and maintained in accordance with sound engineering practices to prevent failure and avoid potential loss of life and destruction of property. The National Dam Safety Program (NDSP) has been established to enhance national dam safety. These funds support the activities under the aegis of the NDSP, in the interests of the USACE and the citizens of the nation.

BACKGROUND: The National Dam Safety Program Act (Section 215 of Public Law 104-303) strengthens the NDSP, whose purpose is to reduce the risks to life and property from dam failure in the United States. The Act also codified the Interagency Committee of Dam Safety (ICODS) to coordinate the Federal actions under the National Dam Safety Program. The Chief, Engineering and Construction Division, Directorate of Civil Works, represents the Department of Defense as a member of ICODS. USACE also provides a representative to the National Dam Safety Review Board. The National Dam Safety Program Act expanded the scope of previous dam safety legislation (P.L. 92-367, and P.L. 99-662) and the requirements for ICODS participation with the various states to improve dam safety in the United States. Through ICODS, the NDSP provides support in development of federal guidelines for dam safety, promotion of public awareness programs, publications, training materials, and workshops. The Act also provides for archival research, which is supported by the Federal dam owning agencies through ICODS and the National Performance of Dams Program.

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

2. FLOOD CONTROL.

a. Reservoirs.

National Dam Security Program

SUMMARIZED FINANCIAL DATA

Estimated Annual Cost for Continuing Program	$30,000
Allocations for FY 2002	25,000
Allocation Requested for FY 2003	**30,000**
Increase of FY 2003 over FY 2002	5,000

JUSTIFICATION: The National infrastructure in the United States, including dams, is becoming an increasing target of terrorist threats. Additional security, training, and preparedness are required to guard against terrorist activity and to avoid potential catastrophic loss of life and destruction of property. The additional funding in FY03 would be used to conduct training for field managers using the IFIP security assessment methodology; for conducting/reviewing a random sample of dam assessments; and to continue the development of the IFIP methodology for use by both Corps personnel and private dam owners.

BACKGROUND: In recognition of these increasing terrorist threats, Executive Order 13010 - *Critical Infrastructure Protection*, and Presidential Decision Directives (PDD) 62 and 63 were issued. The Interagency Committee on Dam Safety (ICODS) has identified terrorism as one of the major threats to dams in the United States. Of all the agency members of ICODS, the Department of Defense acting through the U.S. Army Corps of Engineers has the most unique and in-depth knowledge in the area of antiterrorism program development and execution. This program uses the Army's experience in antiterrorism planning and building design as the basis for developing a program for safeguarding the Corps of Engineers dams. Training under this program is designed for the dam operator and field manager in order to improve their awareness of potential threats and to establish lines of communications to minimize damage if and when a threat is received. The program will also provide for the exchange of information on threats received and the establishment of a database to review trends in the pattern of threats. Through coordination with ICODS and the Interagency Forum on Infrastructure Protection (IFIP), this program will assist in the development of interagency guidance related to the security of dams and appurtenances.

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

2. FLOOD CONTROL.

a. Reservoirs

National Lewis and Clark Commemoration Coordinator

SUMMARIZED FINANCIAL DATA

Estimated Total (FY 2002-2008) Program Cost	$2,762,000
Allocation for FY 2002	300,000
Allocation Requested for FY 2003	310,000
Increase of FY 2003 from FY 2002	10,000
Balance to complete after FY 2003	$1,776,000

JUSTIFICATION: The bicentennial commemoration of the Lewis and Clark Expedition is a significant nationwide event. It is imperative that activities regarding this event at all levels of the Corps be coordinated. The nature of this event will involve large numbers of the public traveling through numerous Corps local jurisdictions. The Lewis and Clark Coordinator is responsible for ensuring consistent agency-wide information on safety, traversing navigation structures (locks and/or dams), historic facts, and the geographic location of the Expedition's route. The Coordinator is also responsible for a consistent agency position in coordination activities with the large number of states, local communities and tribes planning local events either on or in close proximity to Corps projects. Coordinator is also responsible for continued coordination with the Army and other non-Army Federal agencies.

BACKGROUND: The Bicentennial commemoration of the Lewis and Clark Expedition will begin in 2003 and will continue through 2006. A National Bicentennial Council has been established; Federal, state, Tribe, and local governmental entities are planning the roles they will play in the commemoration. Political interest has also rapidly increased. Of the more than 5,000 miles of trail from Washington D.C. to the Pacific Ocean, the U.S. Army Corps of Engineers directly or indirectly manages nearly 4,700 river miles, thus managing more of the trail than any other entity. By virtue of its role as administrator of large stretches of public land along the trail route, and its Army heritage of exploring and mapping of the western United States, the Corps will play a significant leadership role in the observance of the Lewis and Clark Expedition Bicentennial.

MAJOR FEATURES IN THE FY 2003 PROGRAM:

(1) Develop funding sources. (Develop partnerships with groups such as Association of the US Army, Tread Lightly! and others. Use Challenge Partnership Program to develop potential partners. Seek out new and different funding sources (National Endowment of the Humanities, etc.) Establish more partnerships with cooperative associations. Seek ways to accept corporate donations and other non-traditional types of funding. Seek financial assistance to support activities, facilities, and other identified needs.)

(2) Build partnerships. (Establish contacts with BIA and Tribal government designees. Develop a strategy for tribal involvement. Establish contacts with State Governor's committees. Coordinate proposed Corps/Army efforts with other agencies. Work with state recreation and tourism initiatives to market this opportunity for cultural and heritage tourism. Work with Native Americans to ensure their story is interpreted according to their traditions. Identify tasks that could be co-sponsored or co-produced.)

(3) Improve facilities and interpretation. (Work with private and public organizations to improve public access and recreation infrastructure. Implement actions identified in management plans. Provide educational and interpretive opportunities for field and ranger staff. Develop strategy for participation in reenactment activities (i.e., rendezvous, demonstrations, costumed interpretation and festivals.)

(4) Implement plans for Bicentennial activities. (Coordinator with commercial entities. Coordinate volunteer efforts.)

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

2. FLOOD CONTROL

a. Reservoirs.

Recreation Management Support Program (RMSP)

SUMMARIZED FINANCIAL DATA

Estimated Annual Cost for Continuing Program	$1,545,000
Allocation Requested for FY 2002	1,500,000
Allocation Requested for FY 2003	**1,545,000**
Increase of FY 2003 from FY 2002	45,000

AUTHORIZATION: This program is conducted under the general authority of PL 78-534, the Flood Control Act of 1944 (58 Stat. 887).

JUSTIFICATION: The recreation program serves over 375 million recreation visitors and generates over $34 million in revenue annually. Visitors spend over $12 billion annually to engage in recreation at Corps projects; over 500,000 full and part time jobs are associated with this spending. The RMSP supports the recreation program through the conduct of focused management studies to improve operational efficiencies and the provision of technical assistance, to include technology transfer and technology support and maintenance for recreation specific automated information systems. The RMSP supports strategic planning for and performance monitoring of the Corps recreation business program, subject to the Government Performance and Results Act (GPRA).

MAJOR FEATURES:

(1) Focused Management Studies. RMSP provides focused management studies and reports to acquire and analyze information about recreation trends, accessibility, emerging issues, user conflicts, visitor diversity, use fee impacts and similar elements affecting the Corps recreation program. Analyses to assist in conducting the recreation area modernization program, implementing facility and service standards, and in similar product delivery improvement efforts. Information and technology transfer pursuant to these studies is funded by the RMSP.

(2). Management/Technical Assistance. RMSP provides technical assistance to projects for management tools, which quantify recreation program outputs and relate them to customer needs and budget allocations for the purpose of measuring performance. This includes gathering and analyzing information about customer satisfaction with the Corps recreation program. RMSP assures the field workforce is equipped with "state-of-the-art" skills and knowledge to deal with a rapidly changing public. RMSP provides technical support and maintenance for visitation collection and analysis, fee collection and reporting, economic analysis, inventory, and similar automated information programs. RMSP provides short-term assistance to projects in solving specific technical problems.

(3) Support to Recreation Program Strategic Planning. Funding to support the activities of the Recreation Leadership Advisory Team. The Team is composed of representatives from the division, district and project levels of the Corps natural resources management program. It provides input, advice and support to the Corps strategic planning for the recreation business program.

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

2. FLOOD CONTROL

a. Reservoirs

Water Operations Technical Support (WOTS) Program

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost for Continuing Program	$725,000
Allocation for FY 2002	700,000
Allocation Requested for FY 2003	**725,000**
Increase of FY 2003 over FY 2002	25,000

JUSTIFICATION: Maintaining the environmental and water quality conditions at 562 reservoirs (5,500,000 surface acres), 237 navigation locks, 926 harbors, 75 hydropower projects, and 25,000 miles of inland and coastal waterways impacted by the operation of Corps projects requires compliance with numerous statutes and state standards. Providing the technology and knowledge base necessary to address the general non-project specific environmental and water quality needs of project operations can best be accomplished through a comprehensive centralized program that will maximize cost effectiveness, and ensure broad dissemination and implementation of technology and information.

MAJOR FEATURES: The WOTS Program provides effective environmental and water quality engineering technology to address a wide range of water resource management problems at Corps reservoir and waterway projects, and in the river systems affected by project operations nationwide. The program provides technology to address problems occurring from the presence of Zebra Mussels and other non-indigenous aquatic species; tailwater fisheries at pump-back hydropower projects; water quality impacts of land use, sediment and nutrient loadings, erosion, and reservoir sedimentation; and project operations related to environmental and water quality issues.

WOTS provides technical support to the Corps' mission related project responsibilities, with special emphasis on the transfer of technology. The program ensures that the technologies developed by the Corps and other Federal agencies are current and readily available to all Corps field offices. The effective use of technologies is secured through field demonstrations, specialty workshops, publication of information bulletins, technical notes, executive notes, technical reports, miscellaneous papers, instruction reports, videos, meetings, seminars, briefings at field offices, congressional testimony, and the Internet.

ACCOMPLISHMENTS: Since its inception in FY 1985, WOTS has provided environmental and water quality technological solutions to over 1,200 problems identified at projects from every Corps District. The program annually publishes and distributes numerous copies of manuals, bulletins, notes, and reports. WOTS annually conducts specialty workshops, training personnel on the latest environmental and water quality management techniques. In FY 2002, the WOTS program successfully responded to 80 direct technical assistance requests from 31 Corps Districts, conducted 6 technology demonstration efforts to verify management strategies and techniques, 4 training workshops on environmental and water quality management techniques, and prepared 11 technical publications for distribution to the field.

A continual endeavor of the WOTS program is coordination with water quality elements of other Federal agencies such as the Environmental Protection Agency, Tennessee Valley Authority, Bureau of Reclamation, Fish and Wildlife Service, U.S. Geological Survey, and the Bonneville Power Administration. These efforts have involved watershed management activities, problems related to the spread of Zebra Mussels, the impacts of hydropower facilities, and cold water releases in tailwater areas on fisheries.

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

4. PROTECTION of NAVIGATION

Aquatic Nuisance Control Research

SUMMARIZED FINANCIAL DATA:

Estimated Program Cost	$14,348,000
Allocation Requested for FY2003	725,000
Allocation for FY2002	700,000
Increase of FY2003 Over FY2002	25,000

JUSTIFICATION:

This is an expansion of the existing Zebra Mussel Research Program (ZMRP). The expanded program will address all invasive species except aquatic plants. Invasive species cost the public over $11B annually. The Corps of Engineers is responsible for the construction, operations, and maintenance of navigable waters and the resources associated with them. Zebra mussels alone cost the public over $1B annually. The zebra mussel (Dreissena polymorpha), first reported in the United States in 1988, was accidentally introduced from Northern Europe via ballast water from ocean-going vessels. It is estimated that over 100 nuisance species are introduced into US waters annually which can impact facility operations and threaten valued natural resources. Methods of prevention and more effective, inexpensive methods of control of invasive species must be developed to prevent impacts to public facilities and protect valuable natural resources.

The ZMRP is the only Federally funded R&D program directed at control of zebra mussels and their effects on public facilities. The ZMRP is authorized by the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (PL 101-646). The research program must be expanded to address all invasive aquatic species that impact the nations' waterways infrastructure and associated resources. Methods for prevention, control, and restoration of natural resources will be developed. Prevention methodology focusing on dispersal barrier technology will be investigated. The development of strategies to apply control methods involves engineering design, operations, and maintenance of facilities and structures. Control strategies are being developed for (a) navigation structures; (b) hydropower and other utilities; (c) vessels and dredges; and (d) water treatment, irrigation, and other water control structures. Invasive species is the second leading cause of endangered and extinct species and loss of habitat. Methods to reduce invasive species impacts and restore natural habitat will be investigated.

PROPOSED OPERATIONS IN FY 2002

1. Biofouling research efforts will be expanded to include demonstrations on the use of pulse power to eradicate zebra mussels from structures. Also, research on new coatings will be conducted to evaluate their ability to stop the settlement of zebra mussels and other invasive species on various substrate types.

2. Ballast water regulations enforced by the U.S. Coast Guard will be examined to determine if these regulations are reducing the introduction of new invasive species that could potentially create problems similar to those of the zebra mussel and, in addition, alter aquatic systems in such a manner as to put natural resources, including endangered and threatened species, at extreme risk.

3. In cooperation with state and Federal agencies, a comprehensive database will be developed on zebra mussel densities, molluscivore (fish that consume mussels) densities and growth, water quality, and other pertinent habitat attributes. Statistical evaluations will be made among these variables to

construct models predicting the effects of molluscivores on zebra mussel infestations and subsequent changes in habitat quality. These models will quantify the beneficial aspects of predation on zebra mussels, assist in impact prediction, and aid in allocation of control efforts. Secondary benefits will include information on population dynamics of native molluscivores in water bodies infested by zebra mussels. This study will directly contribute to formulation of integrated control strategies to reduce, or eliminate, zebra mussels and indicate the potential for long-term biological control by native fishes.

4. The Aquatic Invasive Species Information System will be expanded into a WEB-based system, and invasive species engineering guides will be incorporated into the system.

5. The mechanisms that allow invasive species to disperse through the nation's waterways will be examined to determine dispersal mechanisms. Investigations will also be conduced to identify proactive procedures that will assist in limiting new distributions.

FY2002 ACCOMPLISHMENTS:

1. The ZMRP was changed to the Aquatic Nuisance Species Research Program (ANSRP), and research efforts were expanded to address all aquatic invasive species except aquatic plants.

2. Dispersal barrier technology and methods to prevent tow traffic dispersal were developed to protect valuable river ecosystems and maintain commercial traffic in these areas. The threat of zebra mussels in the St. Croix River could result in the shut down of commercial navigation in reaches of the upper Mississippi. The spread of zebra mussels in the remaining two thirds of the U.S. will result in billions of dollars annually to the public. Methods being used include acoustical, UV light, pulse power plasma sparkers, hydraulic barriers, shape burst thermal treatment, etc. They have been applied in barrier configurations in channels and on tow vessels to demonstrate effective barriers and removal from vessel surfaces.

3. Canonical correlations of phylogeographic zebra mussel distributions to physical and biological characteristics of the systems were used to identify range-limiting factors for zebra mussels at both the micro- and macro-scales. These studies allowed planners to predict precisely the geographical range of zebra mussel's colonization which will mean a tremendous savings in resources by directing research and control efforts only to those areas susceptible to infestation.

4. Molluscivores were examined for their potential to effectively control invasive mollusks such as Corbicula and zebra mussels. The studies are being conducted to compare the degree of molluscivore predation among lakes with different densities of zebra mussels. In some regions of the U.S., native molluscivores, (e. g., catfishes, freshwater drum, Redear Sunfish) have substantially reduced Corbicula populations. However, the benefits of molluscivore predation have rarely been considered in predicting impacts of zebra mussels.

5. Risk assessments were conducted to determine potential impact to facilities and associated natural resources by new invading species. This information will allow the Corps to focus efforts on species and issues that present the greatest risk to the inland waterways infrastructure and natural resources

6. The Zebra Mussel Information System was expanded into an Aquatic Invasive Species Information System.

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

4. PROTECTION OF NAVIGATION

Dredging Data and Lock Performance Monitoring System

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost for Continuing Program	$1,180,000
Allocation for FY 2002	1,000,000
Allocation Requested for FY 2003	**1,180,000**
Increase of FY 2003 from FY 2002	180,000

AUTHORIZATION: These efforts are necessary to provide data for efficient management of Congressionally authorized navigation projects, as well as to respond to specific public laws, including P.L. 96-269 (Minimum Dredge Fleet) and P.L. 100-656 (Small Business Set-Aside).

JUSTIFICATION:

a. **Dredging Data**: Collection of dredging data is a continual process to support the National Dredging Program. Ongoing tasks include data collection and multi-year analyses of dredging costs and quantities for previous, current and future Fiscal Years, including both new work and maintenance dredging performed by the Corps and commercial dredging industry. Analyses include nationwide and regional trending of dredging cost and quantity data. Funding also supports the management, enhancement, operation and maintenance of the Dredging Information System (DIS) which contains dredging data on all Corps performed and contracted dredging of Federal projects. The DIS is a transactional system within the Operations and Maintenance corporate information system. The DIS data includes advertising schedules, contract award and completion data (actual quantities dredged, cost, type dredge used, etc.). The Dredging Information System is an interactive on-line system with District data input directly into the central database and is immediately available for output reports. Reports and data are accessible Corps-wide via the Corps intranet and biweekly updated reports are disseminated to the public via the World Wide Web. The Dredging Statistics Program, which manages the DIS, has been successful in rapidly addressing all dredging data requests from Corps and other customers. These funds include appropriate software and hardware upgrades, user assistance and training, and implementation of program performance measures. The DIS is a feeder system to the Corps performance based budgeting.

b. **Lock Performance Monitoring System (LPMS)**: The Lock Performance Monitoring System provides operational and strategic management data and performance measures for the Corps navigation projects and program. The funds cover salaries, quality control, database management, software and hardware upgrades, user assistance, and CEAP network services for the Corps nationwide program. This also includes funding for lock characteristics, decision support systems and project database development. These data systems are both transactional systems within the Operations and Maintenance corporate information system. Items 1a (DIS) and 1b (LPMS) are reported under OMBIL-Plus in ITIPS totaling $450,000 of the overall OMBIL-Plus cost.

c. **Future National Dredging and Port Requirements**. To maintain the nation's Federal navigable waterways, approximately 270 million cubic yards of material are dredged in the United States annually. Technological change in the shipping industry is a continual process requiring ongoing efforts to adequately plan for future maintenance dredging activities. Update of current and future needs using the Dredging Needs Database on vessel characteristics, channel dimensions, and commodity origins-destinations and other cargo data is needed to support the Corps maintenance dredging program. Tasks include the annual update of the world fleet composition and forecasts; analysis of current and projected commodity and traffic flows and trade patterns; analysis of characteristics of vessels routing through Corps channels including identification and compilation of the types and sizes of various design vessels (design draft and beam) associated with maintaining Corps projects; analysis of current dredging practices including determination of under keel clearances; and identification of those harbors and channels with the greatest safety and piloting problems.

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

4. PROTECTION OF NAVIGATION

Great Lakes Sediment Transport Modeling

SUMMARIZED FINANCIAL DATA:

Estimated Total Program Cost	$ 11,500,000
Allocation for FY 2002	1,000,000
Allocation Requested for FY 2003	**1,000,000**
Balance to Complete after FY 2003	9,500,000

Authority: Section 516(e), Water Resources Development Act of 1996, as extended by Sec. 334, Water Resources Act of 2000.

Under Section 516(e) of the Water Resources Development Act of 1996, the Army Corps of Engineers is directed to develop sediment transport models for tributaries to the Great Lakes that discharge to Federal navigation channels or Areas of Concern (AOCs). These models are being developed to assist state and local resource agencies evaluating alternatives for soil conservation and nonpoint source pollution prevention in the tributary watersheds. The ultimate goal is to support state and local measures that will reduce the loading of sediments and pollutants to navigation channels and AOCs, and thereby reduce the costs for navigation maintenance and sediment remediation.

Accomplishments: A strategy for implementing this authority was developed in cooperation with the Great Lakes Commission. Based on the priorities established by Great Lakes States, the Corps has completed model development at three tributaries (Saginaw River, Michigan; Grand Calumet River, IN, and; Nemadji River, Minnesota/Wisconsin). The model developed for the Nemadji River is being utilized by local soil conservation districts to promote changes to timber harvesting practices that will reduce soil and streambank erosion affecting the Duluth/Superior Harbor. The model of the Grand Calumet River is being used to support the State of Indiana's development of Total Maximum Daily Loads (TMDLs) for the River with supplementing funds from the Corps' Remedial Action Plan Program (Section 401, WRDA 1990), state funds, and a grant from USEPA. FY 2002 funds are being used to continue or complete model development for the Buffalo River, NY; Menomonee River, WI; Clinton River, MI; Mill and Cascade Creeks, PA; and Maumee River, OH. In addition, Public Outreach has been accomplished through the Great Lakes Commission facilitation and coordination with Great Lakes States, and implementation of a public outreach program to explain what sediment transport models are for, what questions they can address, and how they might be applied in Great Lakes tributaries. The Commission developed an Internet home page for this program to keep model users and stakeholders informed: **http://www.glc.org/projects/sediment**/.

Fiscal Year 2003: The Great Lakes Sediment Transport Modeling program will continue to make progress in supporting the needs of Great Lakes States, conservation districts and local agencies and groups related to soil conservation and non-point pollution prevention. The value of this program will grow as model development becomes more integrated with watershed planning, TMDL evaluations, RAPs and Lakewide Management Plans. Models initiated in FY 2002 will be completed and new applications initiated in areas such as the Genesee River, NY; St. Joseph River, MI; East River, WI, and; Sandusky River, OH.

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

4. PROTECTION OF NAVIGATION

Four line Items

Protection, Clearing, and Straightening of Channels
Removal of Sunken Vessels
Waterborne Commerce Statistics
Harbor Maintenance Fee Data Collection

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	$5,970,000
Allocation for FY 2001	5,925,000
Allocation for FY 2002	5,125,000
Allocation Requested for FY 2003	5,970,000
Increase of FY 2003 from FY 2002	845,000

JUSTIFICATION: The budget estimate provides for carrying out the following work:

a. **Protection, Clearing, and Straightening of Channels** Section 3 of the 1945 River and Harbor Act (as amended by Section 915 (g) of the 1986 Water Resources Development Act) provides continuing authority for limited emergency clearing of navigation channels not specifically authorized by Congress. A limit per project is not specified; however, in any given year, a maximum of $1,000,000 may be used nationwide. Work pursuant to this authority is undertaken as emergency measures to clear or remove unreasonable obstructions to navigation in navigable portions of rivers, harbors and other waterways of the U.S., or tributaries thereof, in order to provide existing traffic with immediate and significant benefit. The amount requested is an estimate based on historical experience. If actual requirements are more than estimated, funds will be reprogrammed to meet demonstrated needs.

b. **Removal of Sunken Vessels** Removal of sunken vessels, or other similar obstructions, is governed by Sections 15, 19, and 20 of the River and Harbor Act of 1899, as amended. Primary responsibility for removal belongs to the owner, operator, or lessee. If the obstruction is a hazard to navigation and removal is not undertaken promptly and diligently, the Corps may obtain a court judgment requiring removal, or remove the wreck and seek reimbursement for the full cost of removal and disposal. Determinations of hazards to navigation and Federal marking and removal actions are coordinated with the Coast Guard in accordance with a memorandum of understanding between the two agencies dated 16 October 1985. Removal procedures are outlined in 33 CFR 245. If removal requirements are more than estimated, funds will be reprogrammed to meet actual needs.

c. **Waterborne Commerce Statistics** The USACE serves as the Federal Central Collection Agency, and is the sole U.S. Government source, for U.S. domestic and foreign (U.S. foreign statistics mission transferred to USACE from Census in FY 1999) waterborne commerce and vessel statistics in conformance with the River and Harbor Act of 1922 as amended. Activities supporting this national statistics mission include: (1) collecting and reporting (includes enforcement role) of water transportation statistical data; (2) automated systems development and operation (transactional systems within Operations and Maintenance corporate information system), processing, compiling, and publishing (monthly, quarterly, and annually) statistical data and information on waterborne commerce

and vessels moving on the internal U.S. waterways, the Great Lakes, and through all U.S. ocean channels and ports; and (3) compiling and publishing the official U.S. documentation of U.S. vessels engaged in commerce, their principal trades and zones of operation. The data provide essential information for navigation project investment analyses, including accurate benefit-cost analyses; annual funding prioritization for operations and maintenance of existing projects; for computation of performance measures; for input into the U.S. National Accounts; and for regulatory and emergency management decisions. This item is reported under OMBIL-Plus in ITIPS and is $1,350,000 of the total OMBIL-Plus cost.

d. **Harbor Maintenance Fee Data Collection** Public Law 103-182 authorizes up to $5 million to be used annually for the administration of the Harbor Maintenance Trust Fund. Most of these funds are used by Customs. The Corps is required to collect data on domestic and foreign shippers of waterborne commerce subject to the Harbor Maintenance Tax (HMT) and provide it to Customs for enforcement. Analysis of Harbor Maintenance Trust Fund (HMTF) revenues and transfers is required to validate the adequacy of the HMTF in light of the uncertainty over the legal and international challenges to the HMT, and to document the operation of the trust fund in the *Annual Report to Congress*. Analysis of waterborne commerce shipments and vessel movement data is also needed to respond to legal questions to the HMT; to analyze alternative funding options; and to assess the economic and competitiveness impacts of other potential funding sources. Therefore the Corps requires a portion of the administrative funding. The recent transfer of the Foreign Waterborne Transportation Statistics Program to the Corps will require the data processing system to be expanded to include validation of users engaged in foreign trade, in addition to domestic users. Requested funds are needed to operate and enhance the system to analyze, enforce, collect and validate harbor usage information required by the Customs Service for auditing HMT collections.

FUNDING PROFILE

	Actual FY 2001	**FY 2002 (Mar 01)**	**FY 2003**
Protection, Clearing, and			
(a)Straightening of Channels	$ 50,000	$ 50,000	$ 50,000
(b) Removal of Sunken Vessels	$ 500,000	$ 500,000	$ 500,000
(c) Waterborne Commerce Statistics	$4,600,000	$4,000,000	$4,745,000
(d) Harbor Maintenance Fee	$ 775,000	$ 575,000	$ 675,000
TOTAL	$5,925,000	$5,125,000	$5,970,000

APPROPRIATION TITLE: Operation and Maintenance, FY 2003

4. Protection of Navigation

Inland Waterway Navigation Charts

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2003-2007) Program Cost	$20,000,000
Tentative Allocation for FY 2003	**4,120,000**
Balance to Complete Five-Year Program after FY 2003	11,880,000
Allocation for FY 2002	4,000,000
Increase in FY 2003 above FY 2002	120,000

AUTHORIZATION: These efforts are necessary to provide data for efficient management of legislatively authorized navigation projects, as well as to respond to specific public laws, including P.L. 96-269 (Minimum Dredge Fleet) and P.L. 100-656 (Small Business Set-Aside).

JUSTIFICATION: In 1994, as a result of an AMTRAK derailment accident near Mobile, Alabama, which was caused by a barge on the inland waterway striking a bridge pier in poor visibility, the National Transportation Safety Board recommended that the Chief of Engineers begin to promote use of electronic charts for safety of navigation on inland waterways. The first part of that recommendation was to extend the coastal DGPS into the inland waterways, which is now about 90% complete. The second part is this effort to provide accurate and current ENC data necessary to allow the commercial ECS to be used to improve safety and efficiency. The American Waterway Operators have also stated a need for consistent Corps channel data for inland waterway electronic charts, and the recent Marine Transportation System study recommended electronic chart coverage be extended into inland waterways and the addition of hydrographic survey information. NOAA is also developing ENC products for their coastal charts, which require use of source data – including Corps channel information. The Water Resources Development Act 2000, Section 558, requires Corps of Engineers districts to provide digital hydrographic survey data to the National Oceanographic Atmospheric Administration (NOAA) in an agreed upon format not later then 60 days after completion of a survey. The U.S. Coast Guard also has plans for implementation of vessel traffic systems (VTS) in New Orleans and other areas and merging of its Aids to Navigation into the ENC datasets provided by other federal agencies such as the Corps and NOAA is necessary. VTS data could be extremely useful to vessels using the waterway, although an electronic chart is needed for display of the information.

SCOPE: This effort provides Corps of Engineers' Electronic Navigational Charts (ENC) for all inland waterways and other federal navigation channels maintained by the Corps of Engineers to be used by commercial Electronic Chart Systems (ECS), which, when combined with the existing Differential Global Positioning System (DGPS), will improve the safety and efficiency of marine navigation in both inland and coastal waterways of the United States. On inland waterways, the Corps will collect more accurate survey and mapping data then is currently on its paper charts. Accuracies of about 2 meters are necessary to match the positional accuracy of the DGPS signal, which when combined in the commercial ECS will greatly improve the safety and efficiency of navigation. This will allow safe navigation through bridge openings during fog and other bad weather conditions as well as during heavy traffic situations. The Corps will also establish a common format and content for these charts. This format will closely follow commercial international standards for navigation charts, and will be closely coordinated with the U.S. Coast Guard and the National Oceanic and Atmospheric Administration (NOAA). The Corps will also establish a common production and dissemination process among districts and divisions to ensure consistent quality and availability across the inland system. The Corps will seek evaluation and feedback from navigation users and ECS vendors to ensure maximum benefit of their ENC data. In coastal waterways, the Corps will convert its highly accurate digital survey and engineering data and related information that it uses for channel design, construction and maintenance operations to adhere to international chart standards, and

will seek to supplement or enhance available NOAA ENCs. The resulting inland and coastal ENC data will be available to the public through internet access, or other hard media if required. Highly accurate information for construction and maintenance of U.S. navigation channels is routinely collected by the Corps of Engineers, but is not easily available for vessel navigation. Such digital survey and engineering information could greatly benefit both the safety and efficiency of navigation, if the data were structured for electronic chart applications and supplemented with other data.

ACCOMPLISHMENTS IN FY 2002:

1. Coordinated standards and requirements with the National Oceanic and Atmospheric Administration (NOAA), U.S. Coast Guard, American Waterway Operators (AWO), the Inland Waterways User Board (IWUB).
2. Conducted three inland pilot projects on the Atchafalaya River, the lower Mississippi River and the Mobile River and Tributaries
3. Developed the plans, procedures and guidelines necessary for standardization of inland waterway chart data products.
4. Developed the internet web site for data dissemination.
5. Began new highly accurate baseline surveys on the inland waterways of features needed in the ENC data.

PLANNED ACCOMPLISHMENTS IN FY03:

1. Continue coordination of standards and requirements with the National Oceanic and Atmospheric Administration (NOAA), U.S. Coast Guard, American Waterway Operators (AWO), the Inland Waterways User Board (IWUB).
2. Begin a similar effort in Corps maintained federal navigation channels along the coast to provide the electronic chart channel data to NOAA to meet their needs and standards.
3. Begin electronic inland navigation charts of the Mississippi River from Baton Rouge, LA to St. Paul, MN and post them to the internet
4. Begin electronic inland navigation charts of the Ohio River from Cario, IL to Pittsburgh, PA and post them to the internet.

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

5. **NATIONAL EMERGENCY PREPAREDNESS PROGRAM (NEPP)**

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	$6,000,000
Allocation Requested for FY 2002	4,000,000
Allocation Requested for FY 2003	**4,120,000**
Increase of FY 2003 over FY 2002	120,000

AUTHORIZATION: Executive Orders 10480 and 12656 which cite several acts including PL 93-288, the basis for the Federal Response Plan.

JUSTIFICATION: The budget request will enable the Corps of Engineers to be prepared to accomplish its continuity of operations and continuity of government responsibilities during national/regional crises. This entails support of civil government through coordinated execution of federal agency plans and the planning/conducting of limited exercises to test readiness to provide such support. The cited executive directives assign significant responsibilities for such preparation (planning, training, research and testing) to the Corps of Engineers. This includes responsibility for development of comprehensive national level preparedness plans and guidance for response to all regional/national emergencies, whether caused by natural phenomena or acts of man, plans for response(s) to acts of terrorism, and the local preparedness necessary to support Corps continuity of operations. The Corps provides engineering and construction support to state and local governments in response to catastrophic natural/technological disasters. Rapid response to disasters of a regional/national magnitude requires that extensive pre-emergency planning and preparedness activities be conducted to assure the availability of a work force capable of shifting from routine missions to crisis operations and the organizational command and control structure(s) necessary to provide a coordinated and comprehensive response in the critical early stages of a catastrophic disaster.

This program provides the activities necessary to prepare for response to catastrophic natural and technological disasters requiring major Federal support of state and local governments overwhelmed by a disaster event, and for national level emergency water planning. The preparation requires the development of plans, training of employees, conducting of training exercises, including support to Federal Emergency Management Agency (FEMA) exercises, and coordination within DOD and with other Federal agencies and state and local governments. Unlike the Corps' Civil Works programs related to individual project planning, development and operations and maintenance, the NEPP requires the development of an integrated command planning and response capability. Corps divisions have a key role in the planning, coordination and operational control of multi-district response(s) and the integrated preparedness effort required for accomplishing this response. Preparation also includes the Headquarters sponsored Corps-wide programs necessary to provide the capabilities and operational command and control required by Corps field commands in order to accomplish their NEPP responsibilities, both routinely and in specific emergency response situations.

ACCOMPLISHMENTS: National Emergency Preparedness Program funds provide support to two major national level civil planning areas: (a) support to the nation's ability to mobilize national assets to meet national/regional level emergencies and (b) support to continuity of government and continuity of operations during national emergencies. Activities include conducting studies and analyses which identify national support requirements; the development, coordination, review and updating of plans; development of operating guidance and procedures; training of personnel in emergency response skills and procedures; conducting exercises to test readiness; operating and maintaining emergency response command and control facilities and support systems; and providing program management. A very significant exercise during FY 01 was the USACE South Pacific Division Earthquake Readiness Workshop held in December 2000. Set against a backdrop of a catastrophic earthquake event occurring in southern California, federal, state and local government agency representatives worked closely with non-government organizations and industry representatives to work towards successfully simulate managing both the acute and long-term effects of the

disaster posed by the scenario. The focus of the workshop was on elements related to Emergency Support Function #3 - Public Works and Engineering, of the Federal Response Plan. Additionally, preparation and plans are underway for the conduct of a Southwestern Division Hurricane Exercise during FY 01 and a Northwestern Division Cascadia Subduction Zone Earthquake Exercise in the Pacific Northwest during FY 02.

PROPOSED OPERATIONS IN FY 32003:

The FY 2003 program will provide for continuing the implementation of the National Emergency Preparedness Program. Lessons learned from events such as the Midwest Floods of 1993, Hurricanes Hugo, Andrew and Iniki, the Loma Prieta and Northridge earthquakes, the South Pacific Division Earthquake Readiness Workshop, and the evolving New Madrid earthquake scenario, clearly indicate that the Federal Response Plan, while a solid system, does not contain enough detail to provide for a response to catastrophic disasters that is sufficiently timely or comprehensive. To overcome this, the Corps initiated a program that uses the deliberate planning process to develop scenario specific catastrophic disaster plans. This will result in more detailed planning and should provide for a more comprehensive response to national/regional catastrophic disasters. More extensive coordination with Federal, state and local entities will be incorporated into plan development. Specific plans for response to 7 different earthquake and hurricane events, to include the New Madrid Earthquake and New Orleans Hurricane, are continuing to be developed. Refining plans, development of additional plans, and conducting exercises within the scope of available funding will be the focus during FY 2003.

The FY 2003 program will continue the process of catastrophic disaster planning and exercising to enable the Corps to rapidly respond to a broad spectrum of emergencies, with emphasis on natural disaster events that have regional and national implications. An effort will be made to satisfy increasing demands on the program to support multi-agency (federal, state, and local government) requests to exercise plans focusing on regional catastrophic natural and man made disasters. Increasingly, federal, state and local agencies are looking to the Corps to take the lead in this area.

OTHER INFORMATION: The NEPP is complementary to the Flood Control and Coastal Emergencies (FCCE) appropriation. Although both programs are related to emergency situations, there is a distinct separation of responsibilities. The NEPP provides for the planning, training, and testing activities necessary to develop the capability to meet essential requirements associated with local continuity of operations and response(s) to scenario specific national/regional crises. The FCCE, on the other hand, provides preparedness and response related to emergency flood fighting, post-flood repair and restoration of flood and shore protection works damaged or destroyed by floods, hurricanes or wave action and Corps preparedness associated with Federal Response Plan mission requirements.

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

6. PROJECT OPERATIONS SUPPORT PROGRAM

Automated Budget System (ABS)

SUMMARIZED FINANCIAL DATA:

Estimated Annual Continuing Cost	$285,000
Allocation for FY 2002 (Centrally funded with available funds)	285,000
Allocation Requested for FY 2003	**285,000**
Increase from FY 2002	0

AUTHORIZATION:

JUSTIFICATION: The Civil Works Operation and Maintenance Automated Budget System (ABS), is an automated system used to enable Districts and Divisions to prepare, review and submit their Operations And Maintenance programs consistent with policy guidelines and priorities. Coordinates with division/district offices to insure the validity and timeliness of data. The program is continuously evaluated for effectiveness to identify areas that require change in order to meet the needs of the overall Civil Works Operation and Maintenance program. It provides for extraction of standard reports to support Division and Headquarters review and development of Civil Works O&M program submittal. Annual training and guidance memos are developed for users and reviewers of ABS-prepared programs for data input, retrieval and analysis.

FEATURES. ABS reports provide cost breakouts by business process, category class codes, states, field units, navigation fee codes, joint cost percentages and numerous other groupings to support, analysis, distribution, updates and performance monitoring. This system is available to all managers at all Corps of Engineer levels who have Operation and Maintenance management responsibilities

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

6. PROJECT OPERATIONS SUPPORT PROGRAM

Earthquake Hazards Reduction Program for Buildings and Lifelines

SUMMARIZED FINANCIAL DATA:

Estimated Eleven Year Program Cost (FY 1992-FY 2002)	$8,448,000
Allocations Prior to FY 2002	7,948,000
Allocation for FY 2002	500,000
Allocation Requested for FY 2003	**300,000**
Decrease from FY 2002	200,000
Remaining Requirement After FY	0

AUTHORIZATION: This program is being conducted under the authority of Public Law 101-614, November 1990, National Earthquake Hazards Reduction Program Re-authorization Act and individual project authorizations for maintaining safety of personnel and emergency response capability.

JUSTIFICATION: The purpose of this program is to respond to the requirements of Public Law 101-614, National Earthquake Hazards Reduction Program (NEHRP) and Executive Order (EO) 12941, Seismic Safety of Existing Federal Buildings. The EO directs all Federal departments and agencies to develop an inventory of their owned and leased buildings and an estimate of the cost of mitigating unacceptable seismic risks in their buildings. The objective of PL 101-614 is to establish and initiate for buildings and lifelines a systematic approach to reducing loss of life, injuries, and economic costs resulting from earthquakes in the United States. Lifelines are defined as public works and utility systems.

STATUS OF IMPLEMENTATION: Prior to FY 2002 the following work has been completed:

Over 12,000 owned buildings and powerhouses were inventoried and data collected, seismic screenings of over 700 buildings in all seismic regions, seismic evaluations were performed on over 200 buildings and powerhouses in various geographic regions primarily in high and moderate seismic regions, development of reports for FEMA to be forwarded to Congress on both buildings and powerhouses, development of seismic evaluation guidance for buildings and lifelines: building evaluation criteria, powerhouse evaluation criteria, lifeline criteria for intake towers, navigation locks, and powerhouses, two seismic evaluation seminars for district personnel, technical support to the districts in accomplishing the evaluations, over 30 rehabilitation case studies including seismic mitigation cost estimates (rehabilitation, replacement, or demolition) for buildings, over 25 rehabilitation cost estimate studies for structural or nonstructural powerhouse deficiencies, inventory of USACE owned buildings including powerhouse superstructures, inventory of USACE leased buildings with estimated populations and recommendations for leasing procedures, development of mitigation program options to meet the executive order requirements and the legal opinion concerns, develop technical seismic building evaluation criteria, develop programmatic seismic criteria, develop guidance for the seismic evaluation and risk mitigation of lifeline facilities, develop associated costs studies to include asbestos and lead based paint costs associated with rehabilitation, adapt the building and powerhouse inventory database to an Oracle system compatible with the OMBIL program and revise building report to reflect the new criteria.

During FY 2002 work is planned to continue on the following: continue development of mitigation program options to meet the executive order requirements and the legal opinion concerns, refine the develop technical seismic building evaluation criteria, refine the develop programmatic seismic criteria, refine the develop guidance or the seismic evaluation and risk mitigation of lifeline facilities, and development of building and powerhouse mitigation plan options,

improve information transfer by use of videoconference calls and development of a seismic web site, and develop reports on selected study items. (Note: One-third of the FY 98 funds were used to inspect and valuate drainage pipes through levees. During recent floods seepage along these pipes showed them to be critical weak points in levee protection systems.)

MAJOR FEATURES OF THE FY 2003 PROGRAM: USACE has a legal opinion that indicates that once we have identified seismically vulnerable structures we are legally responsible to develop a plan to mitigate these vulnerabilities. The funds requested will be used improve seismic information and requirement transfer, adjust the agency specific mitigation plan (if necessary), provide the tools for implementation of the program that would lead to supportable, defensible mitigation decisions, provide assistance to districts in the development of mitigation concepts and designs, provide support to HQUSACE in oversight and management of the mitigation program, provide technical support to HQUSACE, maintain technical seismic expertise, identify potential cost savings areas for study, develop guidance for additional lifeline systems not previously covered in commercially available standards or existing USACE guidance, develop guidance for operations personnel, develop a mitigation plan for the USACE lifelines, update and maintain database. The development and updating of guidance for the seismic evaluation and risk mitigation of lifeline facilities will continue as well.

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

6. PROJECT OPERATIONS SUPPORT

Performance Based Budgeting Support Program

SUMMARIZED FINANCIAL DATA:

Allocation for FY 2001	$1,434,000
Allocation for FY 2002	415,000
Allocation Requested for FY 2003	**815,000**
Increase over FY 2002	400,000

AUTHORIZATION: The Government Performance and Results Act of 1993 (GPRA)and under basic project authority in conjunction with general authorities contained in various project authorizations.

JUSTIFICATION: GPRA requires that the Corps implement performance based budgeting for Civil Works Operations and Maintenance, General Program. The Performance Based Budgeting Support Program addresses this requirement by seeking new methods for linking performance to annual budget requests and for analyzing the potential economic impact of budget requests on customers.

SCOPE

1. **O&M Performance Measurements**: Improvement of performance measurements to be incorporated into the budget decision making process. Efforts focus on the refinement of corporate performance principles and program and project level performance measures that focus on anticipated performance and output at different levels of funding in accordance with the revised finance and accounting cost codes that now align with the five O&M business processes - navigation, hydropower, flood damage reduction, recreation and environmental stewardship. These measurements, at different organizational levels, provide the analytical basis to make adjustments in priorities both at the program and project levels concerning efficiency of facilities or services. Comparison of measurements among projects at all levels helps focus management attention on corrections of program or project deficiencies.

2. **O&M Business Function Information**: An automated national system has been developed to focus the total workforce on results-oriented management and performance-based budgeting. This work includes on-going development of automated processes to collect, process and distribute both national and local performance and output information for all O&M business functions. The continuing production involves program management, infrastructure inventory, maintenance and corporate distribution and analysis. This national system results in the ability of the total O&M community (using a centrally maintained corporate O&M information system fed by transactional systems (e.g. LPMS)) at the local through the national level to recognize, verify and adjust the business process to align with national goals. The outcome is an improved understanding of the relationship between budget versus results. This assists in mobilizing the total workforce to focus on results-oriented management and performance based budgeting. Also, these funds provide for the operations and maintenance of the deployed transactional systems including data review and corrections. This system comprises $600,000 of the total OMBIL-Plus costs within ITIPS.

3. **O&M Business Analysis**: OMBIL has drawn together data and information about Corps business processes from a number of databases. This task will analyze OMBIL data using statistical and other analytical techniques and tools to uncover relationships among budget, expenditures and performance within and between Corps business processes. The relationships and statistics drawn from the data may provide evidence to support an increase in expenditures to improve performance. This task will also develop effective graphics to explain relationships found in the data and allow decision-makers to visualize cause and effect. This task is the link between the data gathering, collection and distribution of OMBIL and the use of that data in the decision-making process.

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

FUNDING PROFILE

	Actual FY 2001	FY 2002 (Mar 01)	FY 2003
(1) O&M Performance Measurements	$ 300,000	$125,000	$ 315,000
(2) O&M Business Function Information	1,100,000	290,000	400,000
(3) O&M Business Analysis	34,000	0	100,000
TOTAL	$1,434,000	$415,000	$ 815,000

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

6. PROJECT OPERATIONS SUPPORT PROGRAM

Regional Sediment Management Demonstration Program

SUMMARIZED FINANCIAL DATA:

Total Federal Program Estimate	$ 15,000,000
Allocation Prior to FY 2002	2,500,000
Allocation FY 2002	1,500,000
Budget Request FY 2003	**1,545,000**
Increase of FY 2003 from FY 2002	45,000
Additional to Complete After FY 2003	7,500,000

Scope: The Demonstration Program goals are to link the management of authorized Corps projects with one another, with the data collection and shoreline management activities of other Federal agencies, and with State and local governments projects, within the limits of a regional littoral system (the coastal equivalent of a watershed). The purpose is to demonstrate the cost savings and increased economic and environmental benefits on both the short term and the long term aspects of keeping beach quality sand within the littoral system.

Accomplishments: Mobile District estimated cost savings of $9.4 Mill with the implementation of 6 proposed RSM initiatives. Detailed numerical modeling and historical evaluation of Perdido Pass were conducted in FY01, resulting in a change in O&M dredging and placement practices at this inlet that are being monitored in FY02 to quantify benefits to the region. The dredging and placement were completed late in FY01. This demonstration project is being monitored to quantify cost savings and increased economic and environmental benefits, and to determine the ability of our existing technology to predict the regional response of the beach. A demonstration at East Pass was completed in FY02, and also is being monitored to determine benefits to the region. They also began working with the state of Florida to change management practices at several inlets and will be monitoring these changes for improvements. The cooperation among Federal agencies and the collaboration among the three levels of government have been the greatest accomplishments to date. Demonstration Projects are underway in northeast Florida, New Jersey, New York, the southeast coast of Lake Michigan, and southern California. The New Jersey and New York projects featured collaboration with the US Geological Survey, the Minerals Management Service, the National Ocean Service, and the National Environmental Satellite Data and Information Service in mapping and managing offshore sediment resources as well as nearshore processes. The Lake Michigan project features close coordination and cooperation with the Corps regulatory program and the states of Michigan and Indiana. The southern California project links the efforts of the state and numerous beach communities from Dana Point to Del Mar. The northeastern Florida project links several navigation projects with shore protection projects in conserving sand.

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

6. PROJECT OPERATIONS SUPPORT PROGRAM

Reliability Models Program for Major Rehabilitation

SUMMARIZED FINANCIAL DATA:

Estimated annual Cost for Continuing Program	$675,000
Allocation for FY 2001	675,000
Allocation for FY 2002	675,000
Allocation Requested for FY 2003	**675,000**
Increase of FY 2003 from FY 2002	0

JUSTIFICATION: The purpose of this program is to respond to yearly needs of Districts and Divisions that are preparing Major Rehabilitation reports for the upcoming fiscal year. The objective of the program is to provide reliability models for project features or components that are being considered for Major Rehabilitation, or to provide procedures to consider the impact of various chemical, environmental or physical processes in a reliability analysis.

STATUS OF IMPLEMENTATION: Reliability models and other analytical tools have been provided in support of Major Rehabilitation reports on numerous navigation and hydropower projects. In addition, 18 rehabilitation workshops have been conducted in the last 10 years to provide assistance to the Districts as they prepare their reports. These workshops offer guidance in conducting reliability and risk analyses, and provide the opportunity for interdisciplinary teams from the Districts to discuss their particular project with HQUSACE and other Districts personnel. A report is in the process of being prepared to show the progress of the preparation of reliability models in support of the FY 2001 rehabilitation reports and a similar report will be prepared for the FY 2002 and 2003 work.

FY 2003 PROGRAM: The requested funds will be used to prepare reliability models and collect data for reliability analyses anticipated to be required by several Districts. Reliability models and/or data are anticipated to be needed for the following: Development of a reliability model for seepage through embankment dams and levees will continue; Development of a screening level tool for the districts to use to prioritize major rehabilitation and dam safety projects; Evaluation of data collected on performance of dam gates, to determine performance modes and verify load cycles used in reliability analyses, and electrical/mechanical systems model for locks and dams. Provide reliability analysis procedures for selected hydropower equipment. It is also anticipated that 2 rehabilitation workshops would be conducted. The makeup of these units is subject to the needs of the respective Districts and Divisions.

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

7. ANTI-TERROR AND FORCE PROTECTION

Facility Protection

SUMMARIZED FINANCIAL DATA

Estimated Annual Cost of Continuing Program	$ 64,000,000
Allocation for FY 2002 (Initial funding in Defense Appropriations)	139,000,000
Allocation Requested for FY 2003	**64,000,000**

AUTHORIZATION: Public Laws 84-99 and Public Laws 93-288 plus Executive Orders 10480, 12656 which cite several acts including PL 93-288, the basis for the Federal Response Plan, and Executive Order 13228 which provides for Agency responsibilities regarding Homeland Security.

JUSTIFICATION: On 11 September,2001, our nation suffered a loss of unimaginable proportions, with terror attacks in New York and Washington. These events have emphasized the resolve of terrorists to weaken our nation by inflicting massive casualties and destroying vital elements of our infrastructure. The scope of USACE assets considered highly vulnerable to future include 75 hydroelectric power projects, 456 major lakes and reservoirs with 385 million annual visitors, 237 locks, 4,000 recreation areas, 12 million acres of public land, 25,000 miles of commercially navigational channels, 926 shallow and deep draft harbors, and $1.2 billion in research and development facilities.

OVERALL CONCEPT:

General. Protection of USACE Critical Infrastructures incorporates the elements of Detection, Protection, and Response. (a) Detection: increased surveillance and awareness, crime watch program. (b) Protection: immediate protection measures, screening to prioritize facilities (approx. 349), detailed assessments at Medium to High consequence facilities. (c) Response: local law enforcement support, local guard force

Purpose (Response, Recovery, Preparedness, Mitigation) Funds for continuity of operations, and continuity of Government, development of national level preparedness plans & guidance for response to all regional/national emergencies whether caused by natural phenomena or acts of man, plans for response to acts of terrorism and local preparedness necessary to support Corps continuity of operations. Conduct of limited exercises to test readiness. Remedy present shortfalls in the preparedness activities brought about by insufficient funds. Provide capability to respond to potential terrorist attacks. Access control at 14 USACE stand alone facilities; guard services. Screening systems, electronic security systems at high profile critical national navigation structures (75 hydroelectric power plants in dams, the Washington Aqueduct (Washington DC's water supply), 21 critical navigation locks. 'Guards (increase to 24-hour security) for national critical infrastructure facilities (hydropower dams and navigation facilities).

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

SCOPE

(a) studies continue to assess the risks and alternatives and recommend protective procedures from acts of terrorism on our facilities . Each facility would have to be evaluated separately to assess current security measures. Many locks and dams and hydropower facilities include recreation facilities with common access roads to these facilities. In the near future, the Corps will conduct an operations project workshop involving team members familiar with security, operations and design of our projects. Vulnerabilities will be explored along with potential high threat targets, risks, short term improvements, long term project changes (design and operation) , and changes in operational procedures.

(b) Locking procedures can be put in place immediately for locking barges carrying toxic or hazardous materials. In cooperation with the U.S. Coast Guard, procedures could be implemented to track these barges along the waterway. This would take a month or more to discuss with the U.S. Coast Guard and determine the type of equipment required, purchase equipment, and implement a tracking procedure. Biological and chemical agent monitoring and control will require studies to determine effective siting, acquisition and installation of sensors and training of personnel in awareness and detection. Coordination with state and local water treatment operations agencies, and other agencies involved with potential usage of Corps facilities will be required. This action will require several months to accomplish.

(c) Critical lock facilities are those locks located on main stem waterways where destruction of one lock would have a major impact on moving materials and supplies, or endanger downstream populations.

Waterway	**Lock Facility**	**Location**
Ohio River	Emsworth	Emsworth, PA
Ohio River	Dashields	Glenwillard, PA
Ohio River	Montgomery	Industry, PA
Ohio River	New Cumberland	Stratton, OH
Ohio River	Pike Island	Wheeling, WV
Ohio River	Hannibal	Hannibal, OH
Ohio River	Willow Island	Reno, OH
Ohio River	Belleville	Reedsville, OH
Ohio River	Racine	New Haven, WV
Ohio River	Robert C. Byrd	Gallipolis Ferry, WV
Ohio River	Greenup	Greenup, KY
Ohio River	Capt. Anthony Meldahl	Chilo, OH
Ohio River	Markland	Warsaw, KY
Ohio River	McAlpine	Louisville, KY
Ohio River	Cannelton	Cannelton, IN
Ohio River	Newburgh	Newburgh, IN
Ohio River	John T. Myers	Mt. Vernon, IN
Ohio River	Smithland	Hamletsburg, IL
Ohio River	Lock 52	Brookport, IL
Ohio River	Lock 53	Mound City, IL

Upper Mississippi River	Upper St. Anthony Falls	Minneapolis, MN
Upper Mississippi River	Lower St. Anthony Falls	Minneapolis, MN
Upper Mississippi River	Lock 1	Minneapolis, MN
Upper Mississippi River	Lock 2	Hastings, MN
Upper Mississippi River	Lock 3	Welch, MN
Upper Mississippi River	Lock 4	Alma, WI
Upper Mississippi River	Lock 5	Minnesota City, MN
Upper Mississippi River	Lock 5A	Fountain City, MN
Upper Mississippi River	Lock 6	Trempealear, WI
Upper Mississippi River	Lock 7	LaCrescent, MN
Upper Mississippi River	Lock 8	Genoa, WI
Upper Mississippi River	Lock 9	Eastman, WI
Upper Mississippi River	Lock 10	Guttenberg, IA
Upper Mississippi River	Lock 11	Dubuque, IA
Upper Mississippi River	Lock 12	Bellevue, IA
Upper Mississippi River	Lock 13	Fulton, IL
Upper Mississippi River	Lock 14	Davenport, IA
Upper Mississippi River	Lock 15	Rock Island, IL
Upper Mississippi River	Lock 16	East Muscatine, IL
Upper Mississippi River	Lock 17	New Boston, IL
Upper Mississippi River	Lock 18	Gulfport, IL
Upper Mississippi River	Lock 19	Keokuk, IA
Upper Mississippi River	Lock 20	Canton, MO
Upper Mississippi River	Lock 21	Quincy, IL
Upper Mississippi River	Lock 22	Hannibal, MO
Upper Mississippi River	Lock 24	Clarksville, MO
Upper Mississippi River	Lock 25	Winfield, MO
Upper Mississippi River	Mel Price	Alton, IL
Upper Mississippi River	Lock 27	Granite, IL

(d) Critical Navigation Facilities

Waterway	**Lock Facility**	**Location**
Illinois Waterway	New LaGrange	Versailles, IL
Illinois Waterway	Peoria	Peoria, IL
Illinois Waterway	Starved Rock	Utica, IL
Illinois Waterway	Marseilles	Marseilles, IL
Illinois Waterway	Dresden Island	Morris, IL

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Illinois Waterway	Brandon Road	Joliet , IL
Illinois Waterway	Lockport	Lockport, IL
Illinois Waterway	Thomas J. O'Brien	Chicago, IL
Illinois Waterway	Chicago Harbor	Chicago, IL
Warrior-Tombigbee	Coffeeville	Coffeville, AL
Warrior-Tombigbee	Demopolis	Demopolis, AL
Tennessee Tombigbee	Jamie Whitten	Dennis, MS
Tennessee Tombigbee	Montgomery	Fulton, MS
Tennessee Tombigbee	John Rankin	Fulton, MS
Tennessee Tombigbee	Fulton	Fulton, MS
Tennessee Tombigbee	Glover Wilkins	Smithville, MS
Tennessee Tombigbee	Amory	Amory, MS
Tennessee Tombigbee	Aberdeen	Aberdeen, MS
Tennessee Tombigbee	John C. Stenis	Columbus, MS
Tennessee Tombigbee	Tom Bevil	Carrollton, AL
Tennessee Tombigbee	Howell Heflin	Gainsville, AL
Gulf Intracoastal Waterway	Inner Harbor Lock	New Orleans, LA
Snake River	Lower Granite	Clarkston, WA
Snake River	Little Goose	Walla Walla, WA
Snake River	Lower Monumental	Pasco, WA
Snake River	Ice Harbor	Pasco, WA
Columbia River	McNary	Umatilla, OR
Columbia River	John Day	Rufus, OR
Columbia River	The Dalles	Dufur, OR
Columbia River	Bonneville	Cascade Locks, OR
St. Marys River	Soo	Sault Ste Marie, MI

Hydropower Facilities

State	Facility
AL	Millers Ferry
AL	Robert F. Henry
AL	Walter F. George
AR	Beaver
AR	Blakely Mt.
AR	Bull Shoals
AR	Dardanelle
AR	DeGray
AR	Greers Ferry
AR	Narrows
AR	Norfork
AR	Ozark-Jeta Taylor
FL	Jim Woodruff
GA	Allatoona
GA	Buford
GA	Carters
GA	Hartwell
GA	J. Strom Thurmond
GA	Richard B. Russell
GA	West Point
KY	Barkley
KY	Laurel
KY	Wolf Creek
MI	St. Marys
MO	Clarence Cannon
MO	Harry S. Truman
MO	Stockton
MO	Table Rock
MT	Ft. Peck
ND	Garrison
OK	Broken Bow
OK	Eufaula
OK	Fort Gibson
OK	Keystone
OK	Robert S. Kerr
OK	Tenkiller Ferry
OK	Webbers Falls
SD	Big Bend
SD	Ft. Randall
SD	Gavins Point
SD	Oahe
TN	Center Hill
TN	Cheatham
TN	Cordell Hull
TN	Dale Hollow
TN	J. Percy Priest
TN	Old Hickory
TX	Denison
TX	Sam Rayburn
TX	Town Bluff
TX	Whitney
VA	John H. Kerr
VA	Philpott
ID	Albeni Falls
ID	Dworshak
MT	Libby
OR	Bonneville (2)
OR	Cougar
OR	Detroit - Big Cliff
OR	Green Peter-Foster
OR	Hills Creek
OR	John Day
OR	Lookout Point - Dexter
OR	Lost Creek
OR	McNary
WA	Chief Joseph
WA	Ice Harbor
WA	Little Goose
WA	Lower Granite
WA	Lower Monumental
WA	The Dalles

APPROPRIATION TITLE: Operation and Maintenance, General – Fiscal Year 2003

APPLICATION OF FUNDS IN FISCAL YEAR 2002

Public Law 107-117, Defense Appropriations, provided emergency supplemental funds under the Operation and Maintenance, General, account in the amount of $139 million. The application of these funds is summarized as follows:

Implement Force Protection Standards for Critical Infrastructure	$71 Million
Establish 24 Hour Armed Guards every day at 372 facilities	65 Million
Initiate vulnerability Assessments	3 Million

APPLICATION OF REQUESTED FUNDS IN FISCAL YEAR 2003. $64 million will be applied to complete or continue major actions initiated in fiscal year 2002. Bulk of funds are needed for Armed Guard protection.

APPROPRIATION TITLE: Regulatory Program, FY 2003

AUTHORIZATION: Rivers and Harbors Act of 1899, Sections 9, 10 and 13
Clean Water Act, Section 404
Marine Protection, Research and Sanctuaries Act, Section 103

SUMMARIZED FINANCIAL DATA:

Budget Request for Fiscal Year 2003	$144,000,000
Appropriation for Fiscal Year 2002	$127,000,000
Increase in FY 2003 over FY 2002	$ 17,000,000

JUSTIFICATION:

Background. The Corps of Engineers has been regulating certain activities in the Nation's waters since 1890. Most of the authority for administering the program has been delegated to the district and division commanders. National public awareness of the aquatic environment, including wetlands, and the involvement of state and Federal resource agencies continue to grow. In 1993, an interagency plan was initiated to improve management and protection of the nation's wetlands. The Corps has implemented many aspects of the plan, designed to improve the efficiency and effectiveness of the Corps Regulatory program. Some changes have enhanced efficiency, allowing the Corps to respond more quickly to permit applicants, while others have improved its ability to ensure protection of the aquatic environment. The general permit program is designed to reduce Federal regulation of minor activities and eliminating duplication of effort with state and local governments. By statute, general permits can only authorize projects with minimal adverse effects on the aquatic environment. The Corps works with state and local governments to develop mechanisms that give them greater responsibility for aquatic resources including wetland regulation. This is achieved primarily through programmatic and regional general permits but also includes joint permit applications and processing procedures as well as work-sharing agreements. In addition, the Corps supports efforts to advocate assumption of Section 404 authority (in non-navigable waters) by States and supports increased development of program general permits for States and other governmental agencies who also regulate the aquatic environment, where the state or local regulatory program is able to implement appropriate regulatory controls. (Since 1984, only Michigan and New Jersey have chosen to assume this aspect of the program). The Corps has issued over 12 programmatic general permits.

APPROPRIATION TITLE: Regulatory Program, FY 2003 (continued)

Types of Activities Regulated by the Corps.

a. Construction and other work in navigable waters of the United States;
b. Construction of fixed structures and artificial islands on the outer continental shelf;
c. Discharges of dredged or fill material, including those associated with construction and land-clearing activities, into the waters of the United States (including wetlands);
d. The transportation of dredged material for the purpose of disposal in ocean waters.

Evaluation Criteria. The decision whether to issue a permit is based on an evaluation of the probable impact of the proposed activity on the public interest. That decision reflects the national concern for both protection and utilization of the Nation's aquatic resources. In addition, for Section 404 permits, the Corps must determine compliance with the Clean Water Act, Section 404 (b)(1).

ACCOMPLISHMENTS: In FY 2001, the Corps authorized over 83,000 activities in writing. Of these, 90 percent were authorized by regional and nationwide general permits and the remaining 10 percent by individual permits. Although the evaluation process for an individual permit is typically greater than that for a general permit, most regional and nationwide authorizations now involve substantive evaluation and determination of necessary mitigation. Without regional and nationwide general permits, all activities would have to be intensively evaluated as individual permits. The Corps continues to depend on its nationwide permit program to help manage its regulatory workload. In January 2002, the Corps announced revisions to its nationwide permit program to protect aquatic resources while streamlining the approval process for some applicants. The changes are in addition to June 2000 nationwide permit changes.

The Corps continues to ensure protection of the nation's aquatic environment, while working to provide fair and equitable decisions in a reasonable period of time. Because of a nearly 50-percent increase in the total number of written permit authorizations since the early 1990's and other factors, the Corps has not been able to maintain its evaluation time for permit actions. In FY 2001, 88% of all actions were authorized in less than 60 days, a decline from 94% in FY 1998. Also, in FY 2001, 60% of standard individual permits (the most complex permits) were completed within 4 months, compared to 80% in FY 1998. In addition to the permit evaluation process, the Corps continues to make over 60,000 jurisdiction determinations a year.

APPROPRIATION TITLE: Regulatory Program, FY 2003 (continued)

FISCAL YEAR 2003: The request of $144 million is a $17 million increase over the $127 million appropriated for FY 2002. This increase is necessary to be more responsive to the regulated public while continuing to ensure the protection of the aquatic environment as required by law. Most of the increase is intended to reverse declines in permit evaluation time over the last several years. Average permit evaluation time for standard permits would be reduced from the FY 2001 average of 149 days to 120 days by 2004. In addition, 70 percent of these permits would be completed within 120 days. To ensure an appropriate level of funding for enforcement, especially inspections of permitted activities for compliance, some additional funds will be committed to enforcement. Out of the proposed $5 million for studies, $3 million will be allocated for new Special Area Management Plans and other watershed approaches designed to expedite permit actions and help manage aquatic resources in sensitive areas in partnership with States.

Other program management efforts will continue, including specialized training of Corps personnel and technical assistance to Corps districts by the Engineer Research and Development Center (ERDC). Generally, from $500,000 to $1,000,000 is allocated to ERDC each year for its technical assistance with complex and sensitive permit cases. In addition, smaller funding amounts may be allocated to other Corps activities (e.g., the Institute for Water Resources) to address special program management issues such as studies of mitigation banking, improvement of data systems to track program workload and wetland acreage, and assessment of impacts due to program changes. Funds also will be used to pay for the review of environmental impact statements by Corps districts.

The $144 million will be applied as follows:

Permit Evaluation	$ 113,000,000
Enforcement, Compliance and Resolution	$ 22,000,000
Administrative Appeals Process	$ 2,000,000
Studies and Wetlands Technical Support	$ 5,000,000
Environmental Impact Statements	$ 2,000,000
TOTAL	$ 144,000,000

APPROPRIATION TITLE: Flood Control and Coastal Emergencies (FCCE), FY 2003

SUMMARIZED FINANCIAL DATA:

Supplemental Appropriation, FY 2001	$50,000,000
Rescission, FY 2002	– $25,000,000
Budget Request for FY 2003	$22,000,000*

DISASTER PREPAREDNESS AND EMERGENCY RESPONSE: The U.S. Army Corps of Engineers continues to provide a leadership role in response to natural disasters throughout the United States. In that regard, the Corps must maintain a preparedness program that ensures the Corps is ready to respond to the needs of the Nation. The Corps responsibilities for emergency response require sustainment of fully functional engineering, construction, and emergency operations capabilities. This response can be under Corps authorities, such as P.L. 84-99, 33 USC 701n, Flood Control and Coastal Emergencies, or in support of other agencies, particularly the Federal Emergency Management Agency (FEMA) under The Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 USC 5121 et seq. Response activities under P.L. 84-99 authority include the following: all preparedness activities; emergency operations (flood response and post-flood response); emergency repair and restoration of flood control work which are threatened, damaged or destroyed by flood; emergency protection of existing Federal hurricane and shore protection works; the repair or restoration of Federal hurricane or shore protective structures damaged or destroyed by wind, wave or water action of other than ordinary nature; preventive work performed prior to flooding when conditions pose a threat to life or property; providing emergency supplies of clean water to any locality confronted with a source of contaminated water causing or likely to cause a substantial threat to public health and welfare; and provision of water supplies to drought-distressed areas by reimbursable well drilling or transportation of water at Federal cost.

In support of FEMA's disaster response and recovery activities (most of which are specified in the Federal Response Plan), Corps mission assignments have included emergency debris removal; preliminary damage assessments; temporary housing and life support; infrastructure restoration; emergency snow removal contracting; engineering services, construction management, and other support that makes full use of the Corps engineering, contracting, and construction expertise. The number and magnitude of disasters in FY 2002 will dictate the depletion rate of the emergency fund. Given the current balance in the emergency fund, it is likely a typical flood and hurricane season will require expenditure of all remaining funds. If the balance were to fall to below $10 Million due to emergency operations activities, the Army would consider an emergency transfer of civil works funds into the FCCE account and initiate a request for an emergency supplemental appropriation to assure the Corps can maintain a nationwide rapid response capability. The prudent management of FCCE funds assures that mobilizing people and materials, obtaining contractor support, and coordinating with other agencies involved in emergency events are accomplished on an expedient, "24/7" immediate response basis. Included in these emergency activities are overtime pay for Headquarters staff, travel to support disaster response and recovery operations, supplies and materials, increased staff support from field activities and Individual Mobilization Augmentees (IMA's), and Remote Sensing/Geographic Information System (GIS) services to support field operations.

* Includes a +$2,000,000 contingent adjustment for full funding of Federal retiree costs.

ACCOMPLISHMENTS: In the past year, the Corps has successfully responded to disasters such as the flooding in Arizona; New Mexico fires; droughts in the Southwest and Midwest states; Tropical Strom Allison; the Nisqually earthquake; West Virginia flooding; and the terrorism attacks at the Pentagon and World Trade Center. In addition, work has continued on repair and rehabilitation projects in California, the Pacific Northwest, and James River, SD. The planning of and preparedness for "all hazards" response activities are funded under P.L. 84-99 authority. The continued investment in these activities guarantees an engineering organization capable of responding to both natural and manmade disasters to include catastrophic events of major proportions such as hurricanes, earthquakes and terrorist attacks. To continue to provide rapid, effective and efficient emergency response to the needs of communities impacted by major disasters, the Corps has developed a new response system -- Readiness 2000 – which provides trained professionals from throughout the Corps to plan for disasters and respond within 6 to 12 hours of activation. This new concept of operations has greatly improved the effectiveness and efficiency of emergency response and recovery operations. Work continues to develop and maintain the capabilities and readiness of these critical response elements.

Major preparedness efforts include the review and updating of response plans based on lessons learned from recent disasters; training of personnel and teams to develop critical skills which enhance the capability to respond under adverse conditions; procurement and prepositioning of critical supplies and equipment (i.e., sandbags, pumps) which likely would be otherwise unavailable during the initial response stages; periodic exercises to test and evaluate plans, personnel, and training; inspection of non-Federal flood control projects to ensure their viability to provide flood protection and assess their eligibility for post-flood rehabilitation; laboratory support for field operations; liaison with State and local governments and agencies; and effective management of the overall response program to ensure workable, coordinated efforts that will meet the needs of disaster victims. The funding identified under All-Hazards Preparedness Activities reflects expanded National and Regional planning, training and coordination to support Federal response to all natural disasters. This includes disasters under the umbrella of the Federal Response Plan. Because of the vast experience of the Corps of Engineers in the infrastructure area, the Department of Defense has given the Corps the lead to support FEMA in Infrastructure Response and Recovery. The Federal Response Plan restructuring requirements requires additional planning and coordination at the Federal (28 departments and agencies), State, and local levels to jointly train and conduct exercises.

FISCAL YEAR 2003: The nature, timing, location, and severity of disasters -- all unpredictable -- will determine how quickly funds are depleted. However, in order to execute an effective FY 2003 program, to include an aggressive levee inspection program, continued response planning, and all-hazards preparedness activities in support of the Federal Response Plan, funds in the amount of $20,000,000 are requested, plus an additional $2,000,000 as a contingent adjustment for full funding of Federal retiree costs. The $20,000,000 requested for FY 2003 will provide for the following preparedness activities:

Corps Statutory Authorities (P.L. 84-99)	$ 13,000,000
All-Hazards Preparedness Activities	$ 6,000,000
Levee Inspections	$ 1,000,000
Total Preparedness Program, FY 2003	$ 20,000,000

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program (FUSRAP), Fiscal Year 2003
($000)

State Project Name	Allocated through FY 2002	FY 2003 Request	Remaining Requirement*
Connecticut			
CE, Windsor, CT	7,742	250	34,795
Maryland			
W. R. Grace, Baltimore, MD	6,697	2,150	42,125
Massachusetts			
Shpack Landfill, Norton, MA	6,278	1,000	32
Missouri			
Latty Avenue, St. Louis, MO	61,759	5,000	83,398
St. Louis Airport, St. Louis, MO	152,106	27,000	57,171
St. Louis Airport Vicinity Properties, St. Louis, MO	36,892	2,500	96,947
Downtown, St. Louis, MO	107,086	16,000	29,656
New Jersey			
Dupont Chambers Works, Deepwater, NJ	6,955	1,400	11,282
Maywood, NJ	201,375	28,000	134,705
Middlesex, NJ	72,783	1,500	19,788
Wayne, NJ	114,139	200	400
New York			
Ashland 1, Tonawanda, NY	64,310	3,075	0
Colonie, NY	134,527	10,000	4,555
Linde Air Products, Tonawanda, NY	90,467	22,470	24,058
Niagara Falls Storage Site, NY		6,300	317,517
Seaway Industrial Park, Tonawanda, NY	6,914	800	17,662
Ohio			
Former Harshaw Chemical Company, Cleveland, OH	990	2,625	39,680
Luckey, OH	15,269	1,680	134,290
Painesville, OH	7,990	6,000	160
Pennsylvania			
Shallow Land Disposal Area, Parks Township, PA	500	2,050	TBD
Subtotal	1,125,635	140,000	1,048,221
Contingent adjustment for full funding of Federal retiree costs		1,000	
Total		141,000	

*The remaining requirement, except as indicated on individual justification sheets, is based on cost estimates developed during the spring of 1998 to validate initial Corps estimates in the Report to Congress. As in the case of the estimates in the Report to Congress, these estimates assume acceptance of criteria for remediation which, while fully protective of human health and the environment also strike an appropriate balance among cost, regulatory and community acceptance, and land use considerations. They also assume funds are provided to support the optimal remediation schedules.

CONNECTICUT

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2002 $	Allocation FY 2002 $	Tentative Allocation FY 2003 $	Additional to Complete After FY 2003 $
Combustion Engineering, Windsor, CT New England District	42,787,000*	6,502,000	1,240,000	250,000	34,795,000

The Combustion Engineering (CE) site is a 600-acre area in Windsor, Connecticut. CE, under contract to the Atomic Energy Commission (AEC), fabricated nuclear fuel assemblies using highly enriched uranium (HEU) from 1958 to 1961. CE also conducted licensed commercial nuclear activity on the site from the early 1960's to 1993. Although the commercial nuclear fuel fabrication ceased in 1993, CE is still licensed by the Nuclear Regulatory Commission (NRC) for other commercial nuclear activities and the facility is still operating today. HEU is the primary radiological contaminant of concern at the site which may be addressed by the Formerly Utilized Sites Remedial Action Program (FUSRAP). Only limited site characterization work had been performed when FUSRAP was transferred from the Department of Energy (DOE) to the Corps for execution. Since then, the Corps has performed a gamma survey of the site, completed site characterization and completed an investigation action at the "Rapaport Building."

Fiscal Year 2002 funds are being used to complete the remedial investigation/feasibility study (RI/FS). Derived Concentration Guideline Limits (DCGLs) are also being developed in cooperation with the Connecticut Department of Environmental Protection, the Nuclear Regulatory Commission and the landowner. In addition, the Corps will evaluate the Liability Analysis and Cost Allocation reports. Funds requested for Fiscal Year 2003 will be used to complete the FS, initiate preparation of a Record of Decision, and continue potentially responsible party discussions.

Site remediation is scheduled to be completed in September 2008**.

*The total cost will depend upon the specific cleanup standards established for this site, taking into account input from Federal, state and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate. The current cost estimate assumes that the cleanup will be completed by the date shown.

**The completion schedule is dependent on the cleanup standards established for this site and overall funding constraints.

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2003 North Atlantic Division

MARYLAND

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2002 $	Allocation FY 2002 $	Tentative Allocation FY 2003 $	Additional to Complete After FY 2003 $
W.R. Grace, Baltimore, MD Baltimore District	50,972,000*	5,797,000	900,000	2,150,000	42,125,000

The W.R. Grace site is situated within a 260-acre property owned by Grace, located on an industrialized peninsula in south Baltimore. Currently, Grace manufactures and produces specialty chemicals at this facility. Contamination at the site consists of radioactively contaminated slabs and other surfaces impacted by the thorium extraction process in Building 23, which is still used by Grace, and the Radioactive Waste Disposal Area (RWDA) to the east of the plant proper. To date, a Potentially Responsible Party (PRP) has not been identified. The Department of Energy (DOE) had conducted radiological surveys at the site; however, no actual characterization or remediation had been performed. To date the Corps has initiated remedial investigations/feasibility studies (RI/FS) for the radioactive waste disposal area (RWDA) and Building 23 decontamination, and removed previously containerized waste stored in Building 23.

FY 2002 funds are being utilized to continue the remedial investigations for the RWDA and Building 23. The funds requested for FY 2003 will be utilized to continue and complete the RI/FS and to finalize the Record of Decision (ROD) for both Building 23 and the RWDA.

Site remediation is scheduled to be completed in FY 2007**.

* The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate. The current cost estimate assumes that the cleanup will be completed by the date shown.

** The completion schedule will depend not only on the cleanup standards established for this site but on overall funding constraints as well.

MASSACHUSETTS

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2002 $	Allocation FY 2002 $	Tentative Allocation FY 2003 $	Additional to Complete After FY 2003 $
Shpack Landfill, Norton/Attleboro New England District	7,310,000*	3,963,000	2,315,000	1,000,000	32,000

The Shpack site is an 8-acre abandoned domestic and industrial landfill, which operated from 1946 to 1965. It is located along the Norton/Attleboro town boundary line with approximately 5.5 acres in Norton and 2.5 acres in Attleboro. The Town of Norton and Attleboro Landfill, Inc. owns the property. FUSRAP-related radioactive contamination is believed to have come from Metals and Controls, Inc. (now Texas Instruments), which had used the landfill to dispose of trash and other materials from 1957-1965. The General Plate Division of Metals and Controls began to fabricate enriched uranium foils at their Attleboro plant in 1952. In 1959 it merged with Texas Instruments, which continued the operations until 1981, using enriched and natural uranium for the fabrication of nuclear fuel for the U.S. Navy and commercial customers. The site was also listed on the National Priority List (NPL) in 1986, primarily to address other contaminants on site. The Environmental Protection Agency (EPA) has signed an Administrative Order by Consent with a group of Settling Parties (which includes Texas Instruments) for the performance of a remedial investigation/feasibility study (RI/FS). Through FY 2001, the Corps has completed a gamma walk-over survey, completed potentially responsible party (PRP) investigations, completed work plans for additional investigations, and coordinated with other responsible parties and the EPA.

Fiscal Year 2002 funds are being used to complete site investigations and develop and evaluate alternatives for a removal action including completing an Engineering Evaluation/Cost Analysis (EE/CA). Fiscal Year 2003 funds will be used to initiate the removal action.

Site remediation is scheduled to be completed in September 2004**.

*The total cost will depend upon the specific cleanup standards established for this site, taking into account input from Federal, state and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in an Action Memorandum, it will be possible to provide a more definitive estimate. The current cost estimate assumes that the cleanup will be completed by the date shown.

**The completion schedule is dependent on the cleanup standards established for this site and overall funding constraints.

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2003 Mississippi Valley Division

MISSOURI

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2002 $	Allocation FY 2002 $	Tentative Allocation FY 2003 $	Additional to Complete After FY 2003 $
Latty Avenue Properties, Hazelwood Interim Storage Site, MO St. Louis District	150,157,000*	55,759,000	6,000,000	5,000,000	83,398,000

The Latty Avenue Properties site is comprised of several different tracts of land in North St. Louis County, Missouri. The project includes an 11-acre site, encompassing the Hazelwood Interim Storage Site and FUTURA Coatings on Latty Avenue, and the Latty Avenue Vicinity Properties, which are at various nearby locations. The Hazelwood Interim Storage Site and FUSRAP Coatings were placed on the National Priority List in 1989. The primary contaminants of concern are radium-226, thorium-230, and uranium-238 in storage piles created during earlier cleanups. Although the piles have been removed, contamination remains in soils under the piles and elsewhere on the site. The primary regulators/stakeholders include the Environmental Protection Agency Region VII, Missouri Department of Natural Resources, and the St. Louis Oversight Committee. Potentially Responsible Party investigations are ongoing. In FY 2001, over 32,000 cubic yards of material was removed and development of the draft Feasibility Study/Proposed Plan continued for final cleanup of the area comprising the St. Louis Airport and Vicinity Properties and Latty Avenue sites (North County Sites).

FY 2002 funds are being used to perform design work and remove approximately 5,000 cubic yards under the Engineering Evaluation/Cost Analysis, complete the Feasibility Study/Proposed Plan, and begin work on the Record of Decision for the North County Sites. FY 2003 funds will be used to complete the Record of Decision, perform design work, and remediate approximately 4,000 cubic yards.

Site remediation is scheduled to be completed in FY 2008**.

* The total cost will depend upon the specific cleanup standards established for this site, taking into account input from Federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate. The current cost estimate assumes that the cleanup will be completed by the date shown.

** The completion schedule will depend on the cleanup standards established for this site and overall funding constraints.

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2003 — Mississippi Valley Division

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2002 $	Allocation FY 2002 $	Tentative Allocation FY 2003 $	Additional to Complete After FY 2003 $
St. Louis Airport Site, St. Louis, MO St. Louis District	236,277,000*	125,136,000	26,970,000	27,000,000	57,171,000

The St. Louis Airport Site (SLAPS) consists of 21.7 acres north of Lambert International Airport in North St. Louis County, Missouri. The site contamination is bordered by McDonnell Boulevard on the north and east, Coldwater Creek on the west, Banshee Road and Norfolk and Western Railway on the south. The ditches immediately adjacent to the north and south of SLAPS are considered part of this location. The primary contaminants of concern are radium-226, thorium-230, and uranium-238. The St. Louis Airport Authority owns the property, which is not being used for any activity. The primary regulators/stakeholders include the Environmental Protection Agency Region VII, Missouri Department of Natural Resources, and the St. Louis Oversight Committee. A Potentially Responsible Party Investigation is underway. The site was placed on the National Priority List in 1989. In FY 2001, the Corps removed approximately 45,000 cubic yards under an Engineering Evaluation/Cost Analysis (EE/CA) and continued development of the draft Feasibility Study/Proposed Plan for final cleanup of the area comprising the St. Louis Airport and Vicinity Properties and Latty Avenue sites (North County Sites).

FY 2002 funds are being used to perform design work and remove approximately 46,000 cubic yards under the Engineering Evaluation/Cost Analysis, complete the Feasibility Study/Proposed Plan, and begin work on the Record of Decision for the North County Sites. FY 2003 funds will be used to complete the Record of Decision, perform design work, and remediate approximately 47,000 cubic yards.

Site remediation is scheduled to be completed in FY 2006**.

* The total cost will depend upon the specific cleanup standards established for this site, taking into account input from Federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate. The current cost estimate assumes that the cleanup will be completed by the date shown.

** The completion schedule will depend on the cleanup standards established for this site and overall funding constraints.

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2003 — Mississippi Valley Division

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2002 $	Allocation FY 2002 $	Tentative Allocation FY 2003 $	Additional to Complete After FY 2003 $
St. Louis Airport Site, Vicinity Properties, St. Louis, MO St. Louis District	136,339,000*	34,892,000	2,000,000	2,500,000	96,947,000

The St. Louis Airport Site (SLAPS) Vicinity Properties consists of 78 properties in North St. Louis County, Missouri. The contaminated sites include former ball fields (located directly north of SLAPS), areas along haul roads, and Coldwater Creek. The primary contaminants of concern are radium-226, thorium-230, and uranium-238. Dispersion of radioactive material occurred either through direct migration from SLAPS, by air or water, or through vehicular distribution along the roadways. (This is the case for most of the roadway, shoulder, and ditch contamination.) The properties are owned by residential, commercial, industrial, and state interests; and they are being used for those purposes. The primary regulators/stakeholders include the Environmental Protection Agency, Region VII, Missouri Department of Natural Resources, and the St. Louis Oversight Committee. A Potentially Responsible Party investigation is underway. As of the end of FY 2001, 33 of 78 properties had been completed or substantially completed under an existing Engineering Evaluation/Cost Analysis. Additionally, remedial design was completed for several additional properties; and development of the draft Feasibility Study/Proposed Plan continued for the SLAPS Vicinity Properties, together with the Latty Avenue and St. Louis Airport Sites (North County Sites). Completion of the Vicinity Properties Sites will require the removal of an additional 111,000 cubic yards of contaminated material.

FY 2002 funds are being used to perform characterization and design work on several vicinity properties, complete the Feasibility Study/Proposed Plan, and begin work on the Record of Decision for the North County Sites (including the Latty Avenue and St. Louis Airport Sites). FY 2003 funds will be used to complete the Record of Decision, perform design work, and remediate approximately 1,000 cubic yards.

Site remediation is scheduled to be completed in FY 2009**.

* The total cost will depend upon the specific cleanup standards established for this site, taking into account input from Federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate. The current cost estimate assumes that the cleanup will be completed by the date shown.

** The completion schedule will depend on the cleanup standards established for this site and overall funding constraints.

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2003 — Mississippi Valley Division

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2002 $	Allocation FY 2002 $	Tentative Allocation FY 2003 $	Additional to Complete After FY 2003 $
St. Louis Downtown Site St. Louis, MO St. Louis District	152,742,000	89,586,000	17,500,000	16,000,000	29,656,000

The St. Louis Downtown Site and vicinity properties are located on and in the vicinity of the Mallinckrodt Chemical Company plant in St. Louis, Missouri. There are 17 acres where contaminated soils are accessible for remediation without major disruption of plant operations. Also included are 17 buildings, subsurface soil, and 18 vicinity properties. The primary contaminants of concern are radium-226, thorium-230, uranium-238, progeny, metals, and organic compounds. Mallinckrodt owns the property and operates a chemical manufacturing facility on the site. The company has also manufactured radionuclide products independent of government operations. Waste from these operations is commingled with FUSRAP wastes. The vicinity properties are active industrial operations owned by others. A Record of Decision was signed in 1998. The primary regulators/stakeholders include the Environmental Protection Agency Region VII, Missouri Department of Natural Resources, and the St. Louis Oversight Committee. A Potentially Responsible Party investigation is underway. In FY 2001, the Corps continued remediation at Plant 1, began remediation at Plants 6 East/6 East Half and Midwest Waste (DT-7), and completed pre-design investigation and design for several other vicinity properties. A total of approximately 11,750 cubic yards of contaminated soils were remediated in FY 2001. The total estimated Federal cost shown above does not reflect possible costs of addressing contamination in inaccessible soils.

FY 2002 funds are being used to complete remedial designs and remediate approximately 15,000 cubic yards from Plant 1, Plant 6 East/6 East Half, and three vicinity properties. Additionally, development of the Feasibility Study/Proposed Plan for inaccessible soils will be initiated. FY 2003 funds will be used to continue development of the Feasibility Study/Proposed Plan for inaccessible soils, complete remedial designs for and remediate approximately 13,000 cubic yards from Mallinckrodt West, Plant 7, and four vicinity properties.

Site remediation is scheduled to be completed in FY 2006**.

** The completion schedule will depend on the recommendation of the Record of Decision for inaccessible soils and overall funding constraints.

NEW JERSEY

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2002 $	Allocation FY 2002 $	Tentative Allocation FY 2003 $	Additional to Complete After FY 2002 $
DuPont Chambers Works Deepwater, NJ Philadelphia District	19,637,000*	4,955,000	2,000,000	1,400,000	11,282,000

The DuPont Chambers Works site is a 700-acre active chemical plant located in Pennsville and Carneys Point Townships on the southeastern shore of the Delaware River, north of the I-295 Delaware Memorial Bridge, and adjacent to the residential community of Deepwater, N.J. The plant is owned and operated by E.I. duPont de Nemours & Company. Operations involving uranium at the Chambers Works site began in 1942. As part of its work on the Manhattan Engineer District (MED) Program, DuPont worked on developing a process for converting uranium oxide to produce uranium tetraflouride and small quantities of uranium metal. The major contaminant is U-238 found in both soil and water samples. Through FY 2001, the Corps initiated site characterization and Remedial Investigation / Feasibility Study (RI/FS) activities for soil contamination and investigation of possible groundwater contamination, conducted a Technical Project Planning session with stakeholders including the New Jersey Department of Environmental Protection, held restoration advisory board meetings, and conducted extensive coordination with the landowner in preparation of on-site investigations. Safety concerns related to the potential for encountering complex chemical contamination have delayed the approval of workplans for on-site investigations.

Fiscal Year 2002 funds are being used for continuation of RI/FS activities for soil contamination and investigation of possible groundwater contamination. Requested funds for Fiscal Year 2003 will be used to complete the Rl/FS study, to investigate possible groundwater contamination, and to initiate the Record of Decision (ROD).

Site remediation, if required, is scheduled to be completed in FY 2006.**

*The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate. Current project completion schedules and cost estimates do not include any remedial design or remediation action for any potential groundwater contamination. The current cost estimate assumes that the cleanup will be completed by the date shown.

** The completion schedule will depend on the cleanup standards established for this site and overall funding constraints.

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2003 North Atlantic Division

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2002 $	Allocation FY 2002 $	Tentative Allocation FY 2003 $	Additional to Complete After FY 2003 $
Maywood, N.J. New York District	364,080,000*	174,205,000	27,170,000	28,000,000	134,705,000

The Maywood site is included on the Environmental Protection Agency Superfund National Priorities List. The site consists of 140 acres of residential, commercial and industrial property totaling 88 commercial and residential properties, located 20 miles north of Newark adjacent to Interstate 80 and State Route 17. There are approximately 259,000 cubic yards of subsurface contaminated material at the site, containing thorium-232, radium-226, and uranium-238. The United States owns 11.7 acres of the site, which is being used as a staging area during cleanup operations. The Stepan Company occupies part of the site and operates a chemical factory processing a patented product. Sears operates a large central distribution warehouse (leased) on the site. In the mid-1980's, 25 residential vicinity properties were remediated. In 1994 an Engineering Evaluation/Cost Analysis by the Department of Energy approved a further interim removal action to remediate an additional 39 vicinity properties. As of the end of FY 2000, all of the 39 vicinity properties included in the 1994 EE/CA have been remediated, including 23 completed by the Corps (15 in FY 1998, 7 in FY 1999, and 1 in FY 2000). Additionally, the Corps has completed a draft Remedial Investigation/Feasibility Study/Proposed Plan (RI/FS/PP) for the remainder of the site, prepared an EE/CA for an interim removal action involving 10 commercial properties impacted by New Jersey Department of Transportation projects and initiated potentially responsible party (PRP) negotiations through the Department of Justice with the Stepan Company.

FY 2002 funds are being used to initiate the interim removal action, to coordinate the draft RI/FS/PP with stakeholders, and to characterize the site further. FY 2003 funds will be used to complete the ROD and to initiate remedial design and remedial action under the ROD.

Site remediation is scheduled to be completed in FY 2008**.

* The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate. The current cost estimate assumes that the cleanup will be completed by the date shown.

** The completion schedule will depend on the cleanup standards established for this site and overall funding constraints.

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2002 $	Allocation FY 2002 $	Tentative Allocation FY 2003 $	Additional to Complete After FY 2003 $
Middlesex, NJ New York District	94,071,000*	71,983,000	800,000	1,500,000	19,788,000

The Middlesex site is a Federal government-owned site located in Middlesex, NJ. There are also 36 Vicinity Properties (VPs). Primary contaminants are Uranium-232, Radium-226, and Thorium-232. The Manhattan Engineer District (MED) established the Middlesex Sampling Plant (MSP) in 1943 for use in sampling, storage, and shipment of uranium, thorium, and beryllium ores. MED operations ended in 1955, and the Atomic Energy Commission (AEC) later used the site for storage and performed limited sampling of thorium residues. In 1967, the AEC terminated activities at the MSP and decontaminated onsite structures to meet criteria then in effect. From 1969 to 1979, the site served as a US Marine Corps training center. In 1980, the MSP was returned to the Department of Energy (as AEC's successor), which designated it for clean up under FUSRAP. MSP was used for interim storage of two piles of radioactively contaminated soils removed from the vicinity properties (VPs) and from the Middlesex Municipal Landfill (MML). The Middlesex site was added to the Environmental Protection Agency Superfund National Priorities List (NPL) in FY 1999. Through the end of FY 2001, the Corps has removed and disposed of the MML pile and the VP pile. Coordination with Federal and state agencies, and local communities is continuing. Additionally, the Corps has initiated a Remedial Investigation/Feasibility Study (RI/FS) leading to a Record of Decision (ROD) for subsurface contamination, the remaining site buildings, and for groundwater contamination.

FY 2002 Funds are being used to continue characterization of the subsurface soils and groundwater. FY 2003 funds will be used to complete the ROD.

Site remediation is scheduled to be completed in FY 2006.**

* The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate. The current cost estimate assumes that the cleanup will be completed by the date shown.

** The completion schedule will depend on the cleanup standards established for this site and overall funding constraints.

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2003 North Atlantic Division

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2002 $	Allocation FY 2002 $	Tentative Allocation FY 2003 $	Additional to Complete After FY 2003 $
Wayne, NJ New York District	114,739,000	109,139,000	5,000,000	200,000	400,000

The Wayne site is 6.5 acre Federal government owned site in Wayne Township, NJ. There are also 26 Vicinity Properties (VPs) covering 11 acres in the towns of Wayne and Pequannock. The radioactive contamination (Thorium-232) originated from commercial thorium processing operation conducted by Rare Earths Inc. and W.R. Grace and Company from 1948 to 1971. Contaminants migrated off-site, primarily via Sheffield Brook. The Wayne site was placed on the Environmental Protection Agency's National Priorities List (NPL) in 1984 and was added to the Formerly Utilized Sites Remedial Action Program (FUSRAP) the same year, after Congress directed the Department of Energy to undertake a cleanup of the site. Coordination with Federal and state agencies, and local communities is continuing. W.R. Grace is a potentially responsible party. Settlement negotiations with the company were completed in 1998 and subsequent to court review, a $32M settlement was reached in July 1999. Work accomplished to date includes the disposal of approximately 40,000 CY of soil from the VP pile, created by the remediation of the VPs; completion of an Engineering Evaluation/Cost Analysis (EE/CA); the removal and off-site disposal of 40,000 cubic yards of contaminated soil under the EE/CA; and the development and approval of the Record of Decision (ROD). Additionally, the Corps has completed Remedial Design workplans and began excavation of contaminated soils in accordance with the ROD; onsite treatment of contaminated water for off-site disposal and initiated site restoration.

In FY 2002, the Corps will complete removal of contaminated soils for off-site disposal, will restore the site, and will initiate short-term monitoring and site maintenance. FY 2003 funds will be used to continue short-term groundwater monitoring.

The small increase in total estimated cost is due to finding unexpected lead contamination and a small increase in the volume of radiological contamination.

The remediation of contaminated soils was completed in December 2001.

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2003 — Great Lakes and Ohio River Division

NEW YORK

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2002 $	Allocation FY 2002 $	Tentative Allocation FY 2003 $	Additional to Complete After FY 2003 $
Ashland 1, Tonawanda, NY Buffalo District	67,385,000	58,310,000	6,000,000	3,075,000	0

The Ashland 1 Site is a privately-owned 10.8 acre site in the Town of Tonawanda that is contaminated with radiological waste, including thorium, uranium and radium. The waste that was disposed of at the site originated at the Linde plant, where uranium ore was processed. The Record of Decision (ROD) for this site, which includes Ashland 2 and Area D of the Seaway site, was signed in April 1998. The cleanup approved in this ROD calls for excavation and off-site disposal of radiologically contaminated wastes. Through FY 2001 the Corps completed the Record of Decision (ROD), and 98% of remedial action (164,032 tons). Planned activities continue to be coordinated with the New York State Department of Environmental Conservation.

FY 2002 funds are being used to complete remediation of the site. FY 2003 funds will be used to close out work on the site, including backfill and restoration of remediated areas and completion of reports. The actual volume of contaminated material encountered is expected to be approximately 21% over the original estimate, resulting in a schedule extension and a $12.1 million increase in the total estimated cost of the project.

The project completion/site closeout is scheduled for FY 2003.

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2003 North Atlantic Division

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2002 $	Allocation FY 2002 $	Tentative Allocation FY 2003 $	Additional to Complete After FY 2003 $
Colonie, NY New York District	149,082,000*	121,197,000	13,330,000	10,000,000	4,555,000

The Colonie site consists of a total area of 11.2 acres plus 56 vicinity properties (VPs). The primary site was owned and operated by National Lead Industries (NL) from 1937-1984. The facility was used for electroplating and manufacturing various components from uranium and thorium. Radioactive materials released from the plant exhaust stacks spread to site buildings, portions of the grounds, and the 56 commercial and residential VPs. NL also dumped contaminated casting sand into the former Patroon Lake. By order of a New York State Court the NL plant shut down in 1984. Coordination is ongoing with the New York State Department of Environmental Conservation, and local leaders. The transfer of the property from NL to the Federal government in 1984 contained "hold harmless" language which precludes holding NL as a PRP. At the time of transfer of FUSRAP execution to the Corps, the Department of Energy (DOE) had completed remediation of the vicinity properties; and had finalized an Engineering Evaluation/ Cost Analysis (EE/CA), completed in 1995, authorizing a removal action to address contamination at the former NL property itself. Through FY 2000, the Corps initiated a removal action, including disposal off-site of stockpiled materials and excavation of contaminated soils, in accordance with the DOE EE/CA. The Corps also continued removal actions under the DOE EE/CA; completed a reevaluation of the DOE EE/CA; issued an amended EE/CA and revised action memorandum and continued the groundwater investigations.

FY 2002 funds are being used to continue the removal action under the revised Action Memorandum and continue with the groundwater investigations. FY 2003 funds will be used to complete the removal action under the revised Action Memorandum and continue with the groundwater investigations.

Site remediation is scheduled to be completed in FY 2006**.

* The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate. The current cost estimate assumes that the cleanup will be completed by the date shown.

** The completion schedule will depend on the cleanup standards established for this site and overall funding constraints.

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2003 — Great Lakes and Ohio River Division

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2002 $	Allocation FY 2002 $	Tentative Allocation FY 2003 $	Additional to Complete After FY 2003 $
Linde Air Products Tonawanda, NY Buffalo District	136,995,000*	77,817,000	12,650,000	22,470,000	24,058,000

The Linde project is located in the Town of Tonawanda, a suburb north of Buffalo, NY. The project consists of two distinct areas: The original Linde site that is occupied by Praxair, Inc.; and (2) The designated vicinity property, the Tonawanda Landfill that is located about 1.5 miles north of Praxair.

The original Linde site that is now owned and occupied by Praxair Inc. is a former industrial complex in an urban area that serves as the worldwide research and development facility for Praxair. Current employment is approximately 1,400 people. A public elementary school and numerous residential properties adjoin the property. Radioactive contamination, from the former Manhattan Engineering District activities, in the soils, buildings, and groundwater at the Linde site is being evaluated and remediated, as required under CERCLA. The principal radionuclides of concern are uranium, thorium, and radium. The total cost of the Linde project has increased since the last budget testimony by $10.6 million due to increased volume of contaminated soils and the resulting schedule extension due to funding constraints. The designated vicinity property, the Tonawanda Landfill and Mudflats Area, is located about 1.5 miles north of the Linde site proper. It consists of two contiguous Town of Tonawanda municipal tracts: the Landfill being approximately 55 acres; and the Mudflats Area, approximately 115 acres.

FY 2001 funds were used to continue the Linde soils remedial action, complete the Building 14 operable unit Feasibility Study Addendum (FSA), and prepare the draft Groundwater operable unit FSA along with two rounds of sampling. In addition, funding was used to complete the remedial investigation sampling for the Vicinity Property.

FY 2002 funds are being used to continue the Linde soils remedial action, complete a Proposed Plan for the Groundwater operable unit, and complete the Record of Decision for the Building 14 operable unit. In addition, funds are being used to complete the Remedial Investigation/Feasibility Study at the Vicinity Property.

FY 2003 funds are required to continue soils remedial action at the former Linde Site, complete a Record of Decision for the Groundwater Operable Unit at Linde, and complete a Record of Decision at the Tonawanda Landfill and Mudflats Vicinity Property.

Total Project completion is scheduled for FY 2006**.

*The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate. The current cost estimate assumes that the cleanup will be completed by the date shown.

** The completion schedule will be dependent on the cleanup standards established for this site and overall funding constraints.

Site	Total Estimated Federal Cost $	Allocation Prior To FY2002 $	Allocation FY2002 $	Requested Allocation FY 2003 $	Balance To Complete After FY 2003 $
Niagara Falls Storage Site, NY					
Buffalo District	354,673,000*	21,956,000	8,900,000	6,300,000	317,517,000

The Niagara Falls Storage Site is a 191-acre Federally-owned site with: a below ground interim repository for radioactive residues and waste; several buildings, one of which contains friable asbestos and isolated areas of fixed, low level radioactive contamination; and several vicinity properties. It is located in Lewiston Township, 19 miles northwest of Buffalo, NY. Material stored in the repository includes 234,770 cy of low activity radioactive waste and 14,390 cy of high activity radioactive residues. The repository is covered with an interim cap designed to retard radon emissions and rainwater infiltration.

An RI/FS has been initiated. FY 2001 accomplishments included gamma surveys of the site and vicinity property “G” with associated sampling, a geophysical survey of the entire site, and chemical and radiological sampling of the Niagara Mohawk easement. FY 2002 funds will be used to: continue the Remedial Investigation; initiate the Feasibility Study (FS); continue preparation of the risk communication package; implement asbestos assessment and removal in Building 401; and continue surveillance, monitoring, maintenance and appropriate security at the site.

FY 2003 funds will be used to complete the RI/FS including a portion of the treatability study and continued surveillance, monitoring, maintenance and appropriate security at the site.

The project completion is scheduled for FY2011**.

*The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate. The current cost estimate assumes that the cleanup will be completed by the date shown.

** The completion schedule will be dependent on the cleanup standards established for this site and overall funding constraints.

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2002 $	Allocation FY 2002 $	Tentative Allocation FY 2003 $	Additional to Complete After FY 2003 $
Seaway Industrial Park, Tonawanda, NY Buffalo District	25,376,000*	6,414,000	500,000	800,000	17,662,000

The Seaway Landfill, a closed sanitary landfill, is a privately-owned 93 acre site in the Town of Tonawanda, 3 miles north of Buffalo, NY that is contaminated, principally on 16 acres, with radiological waste, including thorium, uranium and radium. The waste that was disposed of at the site originated at the Linde Air Products plant, where uranium ore was processed. There are four areas associated with the Seaway Site - Areas A, B, C and D. Clean up of Area D is included in the Record of Decision for the remediation of Ashland 1 and Ashland 2. The project is being coordinated with the New York Department of Environmental Conservation, the New York State Department of Health, and the U.S. Environmental Protection Agency. Through FY 2001, the Corps has initiated the Remedial Investigation/Feasibility Study, completed additional characterization of the Areas A, B and C as requested by stakeholders, and completed a potentially responsible party investigation. Note that the schedule has been extended two years to accommodate the additional investigations and analysis requested by stakeholders, and due to funding constraints.

FY 2002 funds are being will be used to complete a Technical Memorandum on characterization of the Areas A, B and C.

FY 2003 funds will be used to continue the Feasibility Study/Proposed Plan and release a Proposed Plan for public review.

The project completion is scheduled for FY 2007**. This date has slipped due to funding constraints.

*The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate. The current cost estimate assumes that the cleanup will be completed by the date shown.

** The completion schedule will be dependent on the cleanup standards established for this site and overall funding constraints.

OHIO

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2002 $	Allocation FY 2002 $	Tentative Allocation FY 2003 $	Additional to Complete After FY 2003 $
Former Harshaw Chemical Company, Cleveland, OH Buffalo District	43,295,000*	115,000	875,000	2,625,000	39,680,000

The former Harshaw Chemical Company is a privately-owned, 40-acre site located approximately 5 miles southwest of downtown Cleveland, Ohio. The area is predominately an industrial setting bordering the Cuyahoga River. From 1944 through 1959, the site was contracted by the Manhattan Engineering District (MED) and the Atomic Energy Commission (AEC) for the purpose of supporting the Nation's early atomic energy program. Various forms of uranium were produced for shipment to Oak Ridge, Tennessee, for isotopic separation and enrichment. In 1960, the site was released for unrestricted use by the AEC, following decontamination efforts by Harshaw, under the guidance of the AEC. The project is being coordinated with the Ohio Environmental Protection Agency and the Ohio Department of Health. A Preliminary Assessment (PA) recommending inclusion in FUSRAP was completed in FY 2000. FY 2001 funds were used to prepare the scope of work and initiate the Remedial Investigation.

FY 2002 funds are being used to continue the Remedial Investigation and initiate a Potentially Responsible Party (PRP) Analysis.

FY 2003 funds will be used to complete field work in support of the Remedial Investigation and to complete the Potentially Responsible Party (PRP) Analysis.

The project completion is scheduled for FY 2010.**

*The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate. The current cost estimate assumes that the cleanup will be completed by the date shown.

** The completion schedule will be dependent on the cleanup standards established for this site and overall funding constraints.

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2002 $	Allocation FY 2002 $	Tentative Allocation FY 2003 $	Additional to Complete After FY 2003 $
Luckey, OH Buffalo District	151,239,000*	13,669,000	1,600,000	1,680,000	134,290,000

The Luckey Site is a privately owned 40-acre site located approximately 22 miles southeast of Toledo, Ohio. FUSRAP contamination on site consists of both radiological and chemical wastes. The primary radiological contaminants at the site include radium, uranium and thorium. The primary chemical contaminants at the site are beryllium and lead. In 1949, the Atomic Energy Commission constructed a beryllium production facility at the site. The waste solutions and sludge from the beryllium production operations were stored in lagoons on the plant property. Waste solutions were also discharged into Toussaint Creek. (In 1958, beryllium production operations ceased.) In 1951 and 1952, the site operator purchased 1,000 tons of radiologically contaminated scrap steel from the Lake Ontario Storage Area. The scrap steel is believed to be the source of radiological contamination. The Luckey project is being coordinated with the Ohio Environmental Protection Agency and Ohio Department of Health. Through FY 2001, the Corps has completed the Remedial Investigations, completed a potentially responsible party investigation, completed a draft Feasibility Study for soils and groundwater, initiated the Proposed Plan for soils and groundwater, conducted ecological studies of Toussaint Creek and completed an expanded site investigation of two residential properties.

FY 2002 funds are being used to continue the Feasibility Study addressing soils and groundwater including one residential property and complete the ecological evaluation of Touissant Creek.

FY 2003 funds will be used to complete the Feasibility Study addressing soils and groundwater and complete public review of the Proposed Plan including one residential property.

The project completion is scheduled for FY 2008**.

*The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate. The current cost estimate assumes that the cleanup will be completed by the date shown.

** The completion schedule will be dependent on the cleanup standards established for this site and overall funding constraints.

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2002 $	Allocation FY 2002 $	Tentative Allocation FY 2003 $	Additional to Complete After FY 2003 $
Painesville, OH Buffalo District	14,150,000*	7,590,000	400,000	6,000,000	160,000

The Painesville Site is a privately owned 60-acre site located approximately 22 miles east of Cleveland, Ohio. In the early 1940's, the Defense Plant Corporation constructed a magnesium production facility on property owned by the Diamond Magnesium Company. The Diamond Magnesium Company received approximately 1,650 tons of FUSRAP-related radiologically contaminated scrap steel from the Lake Ontario Storage Area, which resulted in contamination of the site. The site is contaminated with radiological waste, including uranium, radium, thorium, and decay products. The site is currently owned by the Crompton Manufacturing Company, Inc., which closed this facility in July 1999. They are actively demolishing existing structures and will be performing environmental remediation for chemical contamination. 1,330 cubic yards of contaminated soils were removed from the site in the fall of 1998 under an Engineering Evaluation/Cost Analysis (EE/CA). The Corps initiated a focused Remedial Investigation/Feasibility Study (RI/FS) to determine the extent of additional contamination and establish the final cleanup criteria. The Painesville project is being coordinated with the Ohio Environmental Protection Agency and Ohio Department of Health. FY 2001 funds were used to continue the RI/FS and complete a Potentially Responsible Party (PRP) analysis. The cost estimate for this project has increased since the last budget testimony by about $300,000 as the result of better quantity estimates.

FY 2002 funds are being used to complete the RI/FS, develop/coordinate the final cleanup criteria, complete the Proposed Plan, and initiate the Record of Decision (ROD).

FY 2003 funds will be used to complete the ROD, develop the remedial design, and initiate and complete remedial action for the site.

The project closeout is scheduled for FY 2004**. This date has slipped due to funding constraints.

*The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate. The current cost estimate assumes that the cleanup will be completed by the date shown.

** The completion schedule will be dependent on the cleanup standards established for this site and overall funding constraints.

PENNSYLVANIA

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2002 $	Allocation FY 2002 $	Tentative Allocation FY 2003 $	Additional to Complete After FY 2003 $
Shallow Land Disposal Area Parks Township, PA Pittsburgh District	*	185,000	315,000	2,050,000	*

The Shallow Land Disposal Area (SLDA) site encompasses 40 acres of land located in Parks Township, Pennsylvania located about 23 miles northeast of Pittsburgh, PA. A nuclear fuel production facility located at Apollo, PA generated wastes that were emplaced into a series of 10 trenches at the SLDA from the period 1960 to 1970. The contamination is believed to consist primarily of uranium and thorium associated with production of nuclear materials at the Apollo facility. The 10 trenches occupy an area of about 1.2 acres of the 40-acre Shallow Land Disposal Area. The site is currently owned by BWX Technologies. In FY 2001, a Preliminary Assessment was undertaken to determine if further action under FUSRAP was warranted.

In FY 2002 funds will be used to initiate a Remedial Investigation (RI) following the CERCLA process.

In FY 2003 funds will be used to continue the Remedial Investigation.

*Total cost and schedule for completion of site remediation to be determined.

Justification Of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 2003
($000)

APPROPRIATION TITLE: General Expenses

		FY 2002 Allocation*	FY 2003 Request**	Change FY 2002-2003	Percent Change
1. Executive Direction and Management					
a. Headquarters, U.S. Army Corps of Engineers					
Baselevel Operating Expenses	$ 52421	$ 52974	$ 553	1.1%	
Civil Program Accounts	8506	7717	789	-9.3%	
Total		$ 60927	$ 60691	$ -236	0.4%
b. Major Subordinate Commands		$ 72152	$ 71440	$ - 712	-1.0%
2. Other Activities					
a. U.S. Army Engineer Research & Development Center (ERDC)		283	$ 273	$ -10	-3.5%
b. Humphreys Engineer Center Support Activity		$ 19032	$ 18261	$ -771	-4.1%
c. Institute for Water Resources	$ 3466	$ 3336	$ -130	-3.8%	
d. USACE Finance Center		$ 1040	$ 999	$ -41	-3.9%
	TOTAL:	$156900	$155000	$ - 1900	-1.2%
3. Contingent Adjustment for full funding of Federal Retiree Costs			$ 6000		
			$161000		

*The FY 2002 allocation represents a distribution of the FY 2002 appropriation of $153,000,000 plus the unobligated carry-over from FY 2001 of $3,874,405 to offset the impacts of inflation, higher than budgeted pay increases, potential increased costs due to relocation services under the Defense National Relocation Program for vacancies, and increases in Plant Replacement and Improvement Program payback costs due to the Headquarters USACE move to the GAO building.

**The FY 2003 request reflects the approved budget of $155,000,000 with no carry-over expected from FY 2002.

APPROPRIATION TITLE: General Expenses

1. Executive Direction and Management

a. Headquarters, U.S. Army Corps of Engineers		FY 2002 Allocation	FY 2003 Request
(1) Baselevel Operating Expenses:	$52421	$52974	
(2) Civil Works Program Accounts:		8506	7717
		$60927	$60691

The Headquarters, U.S. Army Corps of Engineers is responsible for providing policy, guidance, and oversight of a comprehensive Civil Works Program. This mission is decentralized across the Corps of Engineers in 37 districts, 8 major subordinate commands (MSCs), and several field operating activities. The Headquarters, U.S. Army Corps of Engineers assists field commands by providing policy formulation and oversight, national programs management, preparation of the annual budget and legislative submission, national and international interface, management of high interest or controversial projects or issues, resource analysis and distribution, oversight of execution, and performance measurement. In addition to the traditional Civil Works mission, beginning in FY 1998, the Chief of Engineers was given responsibility for the Formerly Used Sites Remedial Action Program (FUSRAP) previously managed by the Department of Energy.

The amount requested for the Headquarters, U.S. Army Corps of Engineers for FY 2003 consists of two components: the baselevel operating expenses of $52,974,000; and the Civil Program Accounts amounting to $7,717,000. The Program Accounts were established in FY 1995 as an outgrowth of disestablishing the Centralized Accounts, which were centrally managed at headquarters and billed back across the Corps. For expediency purposes, those activities essential to supporting the Civil Works mission were deemed appropriate for direct-funding from the General Expenses account and were presented in detail in the FY 1996 budget justification data. Activities funded in the Program Accounts for FY 2003 consist primarily of Civil Works Automated Systems Maintenance, Civil Policy Guidance Update Program, and maintenance of a USACE standard set of construction guide specifications. Beginning in FY 1999, fiscal management of jointly funded programs was transferred to the respective functional proponent. Amounts for these have been included in operating expenses and include approximately $2.9 million for Planner Capability, $1,232,000 for Civil Works Guidance Maintenance Program, $1,924,000 for Corporate Information Technology Program and $1 million for completion of the National Academy of Sciences study directed by Section 216 of the Water Resources Development Act of 2000. These activities continue to undergo close scrutiny to ensure they meet the criteria for Program Account funding and are minimally funded to meet essential mission needs.

The Corps is continuing its efforts to streamline executive direction and management functions at all levels. The Headquarters projected staffing level for FY 03 is 420 FTE. This is a 14% reduction from the FY 97 level of 487. These reductions have been accomplished through focusing on appropriate roles and missions and eliminating duplication of effort, reducing the number of division offices from 11 to 8, and continual process reviews to achieve additional savings through efficiencies.

The breakout of cost differences for the Headquarters by category of expenses is shown below.

Change	
$ 11	Personnel compensation and benefits
- 247	ADP, training and other contractual services
$ - 236	

APPROPRIATION TITLE: General Expenses

1. **Executive Direction and Management** (Continued)

a. Headquarters, U.S. Army Corps of Engineers (Continued)

Cost differences: The FY 2003 budget reflects a flat staffing level in the headquarters of 420 FTE, which started in FY 2002. The $60,691,000 requested for expenses of the Headquarters, U.S. Army Corps of Engineers, includes $50,318,000 for personnel compensation and benefits for civilian personnel and military officers, and $10,373,000 for other costs. The other costs include:

$ 1963	Travel and transportation
8410	ADP, training, and other contractual services
$ 10373	

b. Major Subordinate Commands

FY 2002 Allocation	FY 2003 Request
$72152	$71440

Major subordinate commands (MSC) provide the managerial and technical direction required for supervision of subordinate district offices and coordination of regional activities necessary to execute the Civil Works Program. The Executive Direction and Management activities are currently decentralized to 8 MSC throughout the United States.

In accordance with the Energy and Water Development Appropriations Act for 1996 (Public Law 104-46), the Secretary of the Army approved a plan to reduce the number of division offices from eleven to eight, with each division supervising at least four districts, and without changing the functions of the districts. This division restructuring plan was implemented beginning in FY 1997 with full implementation to be phased in over the next five years. With full implementation of the 8 division office structure, the divisions will have reduced to 546 FTE, (a decrease of 15 FTE or 2.7% from the 2001 level of 561). This staffing level will support an average civil staffing per division of 75 FTE with the exception of the Pacific Ocean Division, which has a primarily military mission.

The breakout of cost differences for the Division Offices by category of expenses is shown below.

Change	
$ 1688	Personnel compensation and benefits
-146	Rent, utilities, and communications
12	Printing and reproduction, supplies and equipment
110	Travel and transportation
- 2,376	ADP, training, and other contractual services
$ - 712	

APPROPRIATION TITLE: General Expenses

1. Executive Direction and Management (Continued)

b. Major Subordinate Commands (Continued)

Cost Differences: The $71,440,000 requested includes $58,057,000 for personnel compensation and benefits for civilian and military personnel, and $13,383,000 for other costs. Labor costs reflect increases for higher than budgeted pay raises and potential increased costs due to offering relocation services under the Defense National Relocation Program. Other costs include:

$ 4248	Rent, communications, and utilities
4546	Travel and transportation
116	Printing and reproduction, supplies and equipment
4473	ADP, training, and other contractual services
$ 13383	

2. Other Activities

FY 2002 Allocation	FY 2003 Request
$23821	$22869

Other activities include: the Humphreys Engineer Center Support Activity (HECSA) which provides administrative support to Corps tenants of the Humphreys Engineer Center and to Corps headquarters; the Institute for Water Resources (IWR) which provides a variety of water management functions such as conducting and managing national studies, special studies in support of the Civil Works mission, data collection and distribution, and technical support to other Corps offices in matters dealing with water resource management; and the US Army Corps of Engineers Finance Center (UFC) which was established in 1996 in Memphis, TN, to centralize the finance and accounting activities Corps-wide. The intent of Defense Management Resource Decision (DMRD) 910 has been completely satisfied by virtue of the consolidation and functional alignment of the UFC. Therefore, the Defense Finance and Accounting Service (DFAS) and the Corps have agreed that the UFC will not be capitalized as previously intended. Consequently, the 10 GE funded FTE's for the UFC remain in the required staffing targets. The General Expenses account provides funds only for those FTE supporting headquarters missions. These activities have reduced their staffing from 131 FTE in FY00 to a flat 122 FTE starting in 2002.

The amount requested for these activities for FY 2003 is $22,869,000, which is a net decrease of $952,000 from the FY 2002 allocation of $23,821,000. Variances from the previous year represent the cost of pay increases and inflation, absorbing an estimated $1.1 million for the continuation of the peer review and planning peer review and methodology studies by the National Academy of Sciences (NAS); mandated by Section 216 of the Water Resources Development Act of 2000, P.L. 106-541; plus the increase due to the $3 million Plant Replacement and Improvement Program (PRIP) paybacks. The PRIP items are a second installment of a 10-year payback for the Headquarters move to the GAO building, the Electronic Data Management System (EDMS) equipment purchase which will reduce the amount of office space required; and the HQ USACE LAN centralization equipment purchase. However, these increases are partially offset by staffing reductions and lower rent costs due to the Headquarters move to the GAO building.

APPROPRIATION TITLE: General Expenses

2. Other Activities (Continued)

Changes	
$ 311	Personnel compensation and benefits.
35	Rent, utilities, and communications.
-1298	ADP, Training and other contractual services
1000	Estimated cost of NAS study
$ - 952	

Cost Differences: Breakdown of the total $22,869,000 request for these support activities includes $10,004,000 for personnel compensation and benefits for civilian and military personnel and $12,865,000 for other costs. The other costs include:

$ 3541	Rent, communications, and utilities (includes HQ payments also)
182	Travel and transportation of goods
143	Printing and reproduction, supplies and equipment
7999	ADP, training, other contractual services, PRIP payback
1000	Estimated cost to complete NAS study
$12865	

APPROPRIATION TITLE: Revolving Fund - Plant Replacement and Improvement Program (PRIP)

1. Explanation of Revolving Fund. The Revolving Fund, which was established by Congress in 1953 (P.L. 83-153, 67 Stat. 199), replaced the Plant Allotment Account authorized by the Secretary of War, on 13 December 1934, which had in turn replaced the Plant Program - Appropriation Basis, which was in use prior to 1934. The two systems, prior to the establishment of the Revolving Fund, did not prove to be successful, because the accounting procedures necessitated by the systems were cumbersome and resulted in a distorted picture of costs when plant was transferred from one appropriation to another.

a. Essentially, P.L. 83-153 provided that the Revolving Fund assume the total capital value of $127.9 million in 1953, consisting of the unexpended cash balance ($25.3 million) and the net value ($102.6 million) of the assets and liabilities of the plant accounts; and to perform all future services, as a separate entity, within its own resources. The Plant Replacement and Improvement Program of the Revolving Fund, or PRIP, has proven to be an effective means of providing equipment and materials needed on more than one project. Some advantages of the system are: (1) Simplifies funding and accounting procedures; (2) Provides a means for plant rental which considers plant replacement costs; (3) Eliminates distorted project costs when plant is not used entirely on a single project throughout its economic life; and (4) Permits plant to be available on a timely basis to meet changing workload requirements.

b. The concept of the Revolving Fund is for it to operate within its own resources, rather than from annual appropriations. The Fund owns all the land, structures, dredges, other floating plant, aircraft, fixed and mobile land plant, tools, office, furniture, special equipment, computers and automated systems, that serve two or more Civil Works projects or appropriations. In order for the Revolving Fund to acquire and replace the above items, it is necessary that the user project or appropriation be charged a fee for the actual time the equipment or service is used. This fee consists of operating and fixed costs. The operating costs are reimbursed to the Revolving Fund without any surcharge. The fixed or capitalized costs include depreciation, based on the straight-line method and a plant replacement increment factor to provide for future increased costs of replacement items due to inflation. When planned expenditures exceed the income producing capability of the Fund, additional direct appropriations are requested.

c. When the Revolving Fund was established, Congress authorized a capital limitation or ceiling (Corpus) of $140.0 million for the Fund. The capital value or corpus is the total assets, less liabilities and reserves. The $140.0 million ceiling was adequate until 1965, when increased workload and inflation required that the Corps of Engineers request annual increase in the corpus ceiling. These requests were generally granted. The limitations on the corpus ceiling value limited the income that could be generated from plant rentals, which, in turn, adversely affected the overall management of the Fund. Therefore, the Corps recommended that an annual capital expenditure ceiling be substituted for the corpus ceiling. Congress granted the request in FY 1979. Starting with FY 1985, expenditure ceilings were replaced by estimates of expenditures. Starting in FY 1994, the Corps replaced the estimate of expenditures by an estimate of obligations. This was done in accordance with recommendations of the General Accounting Office that the Corps change to obligations accounting within the Revolving Fund.

2. The Revolving Fund is operated in the Divisions, Districts, and separate Field Offices, the Waterways Experiment Station, and the Cold Regions Research and Engineering Laboratory. The fund incurs the expenses of acquisition, rehabilitation, operations, and maintenance of multiple use structures, such as warehouses, shops, garages, and laboratories; the expenses of acquisition, rehabilitation, operations, and maintenance of general-purpose plant, such as dredges, tugs, launches, trucks, cranes, bulldozers, and other construction equipment; and the general expenses of District offices.

3. The Corps Revolving Fund, Plant Replacement and Improvement Program, includes nine New Major Items for FY 2003 and forty-one Continuing Major Items from FY 2002. Three of the Continuing Major Items have revised cost estimates in excess of ten percent. The charts below provide cost estimates for the New Major Items and the revised cost estimates in excess of ten percent for the Continuing Major Items.

New Major Items	Page	Total Estimated Cost ($000)
1. Caven Point West Bulkhead Rehabilitation – New York District	163	2,900
2. Environmental Laboratory, Buildings 3296 & 3284 – Waterways Experiment Station	163	9,105
3. Dredge Tender WAILES Replacement – Vicksburg District	165	2,225
4. Derrickboat No.10, Crane and Shop Barge Replacement – Nashville	167	7,540
5. Maintenance Gate Barge and Spare Gates – Rock Island	167	4,710
6. Crane Barge MAZON Replacement – Rock Island District	167	3,825
7. Crane Barge KEWAUNEE Replacement – Rock Island	167	5,010
8. Towboat ROCK ISLAND Replacement – Rock Island District	168	7,055
9. Interactive Vessel Simulators Replacement – Waterways Experiment Station	174	980
		43,350

Continuing Major Items with Revised Cost Estimates in excess of 10%	Page	Previous Estimated Cost ($000)	Revised Estimated Cost ($000)	Total Cost Increase ($000)
1. Airplane Replacement - Mississippi Valley Division	164	4,315	12,500	8,185
2. Airplane Replacement - Northwestern Division	164	2,540	6,000	3,460
3. Dredge ESSAYONS Control System Replacement - Portland District	165	3,975	7,835	3,860
		10,830	26,335	15,505

PRIP Category	Page
Land and Structures	163
Airplanes	164
Dredges	165
Other Floating and Mobile Land Plant	167
Fixed Land Plant and Automated Systems	174
Tools, Office Furniture and Equipment	175A

4. FY 2002 and FY 2003 (Items costing $700,000 or more)

a. Land and Structures:

(1) Caven Point West Bulkhead Rehabilitation – New York District (New) The 27-year-old steel sheet-piling Caven Point bulkhead is badly deteriorated. The west bulkhead is used to berth floating plant belonging to the New York District and to maintain the property line with the Caven Point Marine Base. Severe corrosion of the bulkhead has caused numerous cave-ins, which undermine the macadam area adjacent to the bulkhead that is used as a walkway and vehicle roadway, creating hazardous conditions to the crews working in the area and people getting on/off vessels. The voids created by the cave-ins have been filled and steel patches welded onto the bulkhead to temporarily stabilize the problem. Even with the patches, the bulkhead will continue to deteriorate requiring additional patches and constituting a continuing danger to employees. Total estimated cost: $2,900,000. Through FY 2001: $300,000 to initiate design. FY 2003: $2,600,000 to initiate and substantially complete construction.

(2) Environmental Laboratory, Buildings 3296 and 3284 – Waterways Experiment Station (New) Additions and betterments are required to permit the consolidation of the Environmental Laboratory into Buildings 3296 and 3284. The Environmental Laboratory is currently located in several buildings at four different locations within the Waterways Experiment Station. Management and administration as well as daily coordination of research activities are complex and inefficient under the present arrangement. The additions and betterments to Buildings 3296 and 3284 will allow for the consolidation of the Environmental Laboratory staff in a central location for a maximum efficiency of operations. Total estimated cost: $9,105,133. FY 2003: $655,900 to initiate design. Future Years: $8,449,233 complete design and initiate and complete construction.

(3) Coastal and Hydraulic Laboratory Headquarters Building – Waterways Experiment Station (Continuing) The U.S. Army Waterways Experiment Station Coastal Engineering Research Center and Hydraulics Laboratory were merged in 1996 to form the Coastal and Hydraulics Laboratory, the largest water resources research and development laboratory in the world. The principal objectives of the merger were to foster team approaches to addressing complex water resources issues; to streamline management and eliminate duplication in technical methods, support staff, support systems and infrastructure and create synergy. These objectives are essential in the support of the Corps civil works mission. Progress has been hampered significantly because the two former organizations remain physically located in their pre-merger buildings approximately .5 miles apart by road. While some goals of the merger have been achieved, management and administration of the new organization has become more complex and less efficient because of the physical separation. The additions and betterments to the present Coastal Hydraulics Laboratory complex of buildings will allow full and complete consolidation of all personnel and equipment under one roof for maximum efficiency. The economic analysis comparing the cost of the proposed additions and betterments to the status quo supports the former based on a savings to investment ratio of 2.23 and a discounted payback period of 10.4 years. The net present value of the additions and betterments is $15.3 million, which is $8 million less than net present value of the status quo. Total cost estimate is $7,700,000. Through FY 2001: $285,000 to initiate and complete design. FY 2002: $7,415,000 to initiate construction.

(4) ESTEX Hyperflume Research Facility - Waterways Experiment Station (Continuing) The USACE Waterways Experiment Station (WES) hydraulics, coastal and environmental research is increasingly directed to problems of time varying stratified flow and transport in rivers, reservoirs, and estuaries. ESTEX is needed to make progress in a number of areas. The WES Hydrodynamic and Sedimentation Experimental Hyperflume Research Facility (ESTEX) will be one of the world's premier experimental facilities for highly unsteady flow and transport research. It will be the hub of a 20 to 25 year research program providing R&D products that are essential to keeping USACE projects safe, effective, and environmentally sound in the 21st century. The facility will be a major resource for the Corps and national research in studying processes of solving problems in water resources. The facility will consist of four units with total length of approximately 500 ft. The final design was accomplished in consultation with expected users, which includes other government agencies and academia, through correspondence and presentations at national and international conferences. Primary economic analysis of constructing the ESTEX shows a savings/investment ratio of 4.84 and a

discounted payback period of 4.6 years. The Net Present Value (NPV) of using the existing facility is $13.8 Million; the NPV to build the ESTEX is $3.6 million. Total estimated cost: $4,000,000. Through FY 2001: $3,467,000 to substantially complete construction. FY 2002: $500,000 to complete construction.

b. Airplanes

(1) Airplane Replacement - Mississippi Valley Division (Continuing) The Mississippi Valley Division (MVD) operates one of two Corps owned aircraft. Corps ownership of up to four aircraft was authorized in 1954 by the Act that established the Revolving fund. The MVD aircraft is a 40-year-old Gulfstream G-I, twin turboprop aircraft, which the Corps acquired in 1973. Annual usage averages 300 hours. The Corps emergency response mission justifies continued aircraft ownership in accordance with the requirements of OMB Circular A-126. Scheduled service and charter service are not viable options and often are not available to meet emergency response requirements. In recent years, the aircraft has been used to support FEMA hurricane and other disaster recovery operations throughout the Southeast, Puerto Rico and the U.S. Virgin Islands. The most recent FEMA use of the MVD aircraft was to transport subject matter experts to New York to assist in the recovery from the September 11, 2001 terrorist attacks when only military aircraft were allowed to fly in U.S. airspace. Non-mission usage such as the transportation of senior Corps officials and Engineer Research Development Center (ERDC) personnel is permitted when cost effective. During FY-00, the Corps saved $281,000 using the G-I over the cost of the same travel via commercial carriers. The aging aircraft is becoming more and more expensive to maintain. Replacement parts and service providers are difficult to obtain which affects mission readiness and reliability. The first study conducted for the Corps two years ago focused primarily on acquisition cost with little consideration given to operational capabilities and emergency response missions. Recent national emergency occurrences demonstrated operational capability is in fact a critical factor. The original study was updated and it determined that the recommended SAAB 340 turboprop aircraft with an estimated cost of $4.3 million (M) would not be able to complete most of the Missouri River and Territory missions and very few of the FEMA emergency response missions. The aircraft recommended in the updated study with operational requirements as the most important factor, is the Gulfstream G-III, estimated cost of $12.5M, an increase of $8.2M over the original cost to replace the MVD aircraft. This aircraft is in use by the U.S. military making it a standard military aircraft, which will insure parts and service capabilities for many years to come. Total estimated cost: $12,500,000. FY 2002: $12,500,000 to initiate and complete.

(2) Airplane Replacement - Northwestern Division (Continuing) The Northwestern Division (NWD) operates one of two Corps-owned aircraft. Corps ownership of up to four aircraft was authorized in 1954 by the Act that established the Revolving Fund. The NWD is a 30 year-old Swearingen, Merlin IV twin-engine aircraft that was purchased in 1971. Annual usage averages 400 hours. The Corps emergency response mission justifies continued aircraft ownership in accordance with the requirements of OMB Circular A-126. Scheduled service and charter service are not viable options to meet emergency response requirements. The aircraft is used to facilitate the inspection, supervision and conduct flood fighting, flood control, and navigation operations mission of the Division. In addition, in recent years, the aircraft has been used to support FEMA. Non-mission usage is permitted when cost effective. During FY 00, the Corps saved $384,000, using the Merlin IV, over the cost of the same travel via commercial carriers. The NWD aircraft is nearing the end of its economic life and is becoming more expensive to maintain. The aircraft has reached the age where most parts are difficult to obtain which affects mission readiness and reliability. The first study conducted for the Corps understated operational capabilities and focused primarily on acquisition cost and recommend the acquisition of a used aircraft (less than 10 years old), King Air 1900D, estimated cost $2.5 million (M) Since the September 11, 2001 terrorists attack, operational capability is now a critical factor. The original study was updated with operational capability for emergency response being the more critical factor in evaluating alternatives. The updated study recommended the acquisition of a new King Air 1900D aircraft rather than a used one. Estimated replacement cost for the new aircraft is $6M, an increase of $3.5M over the original cost to replace the NWD aircraft. An additional consideration favoring new acquisition is that the demand for used aircraft by private corporations has increased since the terrorists attack causing a shortage of aircraft available. Total estimated cost: $6,000,000. FY02: $6,000,000 to initiate and complete.

c. Dredges

(1) Dredge Tender WAILES Replacement – Vicksburg District (New) The WAILES was built in 1935 and after 66 years of service is at the end of its economic life. The WAILES supports operations of the Dredge JADWIN by setting anchors, assisting the dredge in staying on-line while dredging, setting the landing barge and towing different types of barges including the fuel barge. Dredge Tender WAILES is critical to the execution of the JADWIN's mission of maintaining a nine-foot depth in the navigable channels of the Mississippi River. The Tender Wailes does not meet current industry standards; is underpowered; and is not equipped with flanking/backing rudders. This severely inhibits the steering efficiency of the vessel while in the astern or backing mode. In addition, electrical and mechanical systems are extremely old and unreliable and maintenance costs are continuing to rise. Total estimated cost: $2,225,000. FY 2002: $10,000 to initiate design. FY 2003: $1,945,000 to complete design and initiate construction. Future years: $270,000 to complete construction.

(2) Dredge ESSAYONS Control System Replacement MDC 2482 - Portland District (Continuing) The Dredge ESSAYONS has been in service since 1983. At delivery from the shipyard, automated systems were state of the art. However since 1983, automation associated with dredging systems have evolved significantly. Dredge ESSAYONS is still operating with much of its original automated dredge control and monitoring systems. Over time some of the systems have been either modified or upgraded or bypassed or abandoned. The major problem associated with the age of the systems is that replacements for some components necessary to run the systems are no longer commercially available. Replacement of the dredging system automation is required to allow continued operation of the dredging system. The economic analysis showed without the upgrade, the original dredging automation is estimated to fail in the next 3 to 5 years, and the vessel will be unsafe to operate with loss of revenue is estimated at $40.5 million a year. The original estimate of $3.9 million to replace the control system was based on market survey data obtained in FY 98. The estimate presumed the reuse of existing sensors and cabling components would reduce the cost of buying new components, as well as, reduce the installation cost by the shipyard. However, during proposal negotiations it became clear that reusing the existing wiring and sensors, while fully functional, would not integrate properly with the new system and would be problematic. In addition, the decision was made to go to a best value style of procurement. This approach was selected to minimize the technical risk associated with this relatively complex job on a very valuable Corps asset. This procurement methodology along with the replacement of wiring and sensor components resulted in a estimated cost of $7.8 million, increase of $3.9 million. Under this approach there is less technical risk of a project failure whereby either a system that didn't function properly or an installation that made the dredge unavailable for an extended period of time. Total estimated cost: $7,835,000. Through FY 2001: $3,945,000 for design and to initiate construction. FY 2002: $3,710,000 to substantially complete construction. FY 2003: $180,000 to complete construction.

(3) Dredge McFARLAND Longitudinal Seam Replacement – Philadelphia District (Continuing) The McFARLAND is one of four Corps of Engineers hopper dredges, and the only one operating on the East Coast. It requires the replacement of a longitudinal structural seam in order to maintain the ship's integrity and prevent the possibility of leaking contaminants into the sea. The McFARLAND was originally constructed with a riveted lap seam strake running along the hull. Over the past thirty years this riveted strake has experienced wastage from moisture on the inside and wear on the outside, consequently is scrutinized by the U.S. Coast Guard during vessel dry-dock inspections. The wastage has created a leakage condition. These leaks were locally repaired during previous shipyard periods, but are a problem that is becoming more prevalent. Although, in the past, the Corps of Engineer has been able to obtain a waiver, the Coast Guard has become increasing reluctant to pass the McFARLAND without major repairs made to the strake. The only permanent way to correct the problem is to replace the riveted strake. Replacement of the strake will allow the McFARLAND to pass Coast Guard inspections; will increase the level of vessel safety and alleviate potential hazard to the environment. Only two alternatives were considered, the status quo, which involves continuing to maintain and repair existing riveted lap seam strake, and replacement of the strake. The net present value of the replacement alternative, $172.4 million, is slightly less than the status quo, $173.9 million. More importantly it is a permanent repair which eliminates the need for a waiver from Coast Guard requirements and effectively reduces the possibility of fuel oil leakages. Total estimated cost: $1,525,000. Future years: $1,525,000 for design and construction.

(4) Dredge WM. A. THOMPSON Repowering MDC 2457– St. Paul District (Continuing) The Dredge WM. A. THOMPSON was built in 1937 and repowered in 1966. The dredge is a 62-year-old self-propelled dredge and part of the Corps' Minimum Dredge Fleet. It has consistently proven itself to be the most cost-effective method of maintaining the 9-foot Mississippi River navigation channel in both the St. Paul and Rock Island Districts. In 1996 the THOMPSON was competitively bid against industry. Continued use of the THOMPSON would save the Government $3 million annually. The existing power plant, after 33 years of use, must be replaced to reduce operating costs and downtime required to make repairs. Spare parts are also becoming increasingly scarce. In addition to the proposed repowering, other production improvements will be effected at the same time, including the installation of a more efficient dredge pump, propulsion power increases, and electrical updates. Repowering efforts are expected to increase the useful life by thirty years with net long-term savings of $22 million. An economic analysis of repowering shows a discounted payback period of 4.8 years, and savings to investment ratio of 5.09. The net present value of the status quo is $82,324,300, compared with $64,519,500 for the proposed repowering. Total estimated cost: $12,400,000. Through FY 2001: $157,800 to initiate design. FY 2002: $7,400,000 to initiate construction. FY 2003: $3,265,000 to substantially complete construction. Future years: $1,577,200 to complete construction.

(5) Repower Dredge POTTER, MDC 2375 - St. Louis District (Continuing): The obsolete, 1930's vintage steam power plant on the POTTER is under-powered, unreliable, expensive to operate and very difficult to maintain. This project will employ current technology to modernize the vessel's power plant, and increase the efficiency of both its propulsion and dredging systems. The dredge will be used indefinitely. The daily rate for the repowered dredge is projected at $33,200 per day, vice the current rate of $37,000 per day. The dredge uses an average of 6,200 gallons of fuel per day, which can be reduced to 2,400 gallons per day by repowering with a diesel electric configuration. The annual repair costs, presently in the $1 million to $1.5 million range, decrease to the annual estimated $500,000 repair cost of a repowered dredge. The total annually estimated savings in repairs, fuel, labor and plant increment is $1.5 million. Based upon a cost differential (savings) of $180 million over the life of the repowered dredge and a present value of savings of $31 million, it is recommended that the Dredge POTTER be repowered with a diesel electric configuration. Total estimated cost: $22,415,200. Through FY 2001: $22,365,200 for design and substantially complete construction. FY 2002: $50,000 to complete construction.

(6) Dredge Ladder Extension for the JADWIN, MDC 2276 - Vicksburg District (Continuing): The spare Hurley dredge ladder will be extended from 58' to 108' for the JADWIN to enable maintaining the recently deepened 45' navigation channel from Baton Rouge to New Orleans. Lengthening is required because dredging must be accomplished when river stages are still high in order to maintain the authorized depth at low stages. The present practice is to start dredging as soon as the dredge can reach the river bottom, but with the 58' ladder sometimes this is allows maintaining only a 250' wide channel, which presents problems to the shipping industry and increases the likelihood of collisions and groundings. Using the actual cost to convert the Dredge Potter as a model, and the change in scope from a newly constructed 75' ladder to lengthening of the spare Hurley ladder to108', the estimated cost is revised from $1,090,000 to $8,292,200, an increase of $7,202,200. Modifications will be accomplished during the lay up period, which normally runs from December to June. Total estimated cost: $8,292,200. Through FY 2001: $51,200 to initiate design. FY 2002: $500,000 to complete design. FY 2003: $0. Future years: $7,741,000 to initiate and complete construction..

(7) Dredge Ladder Extension for the HURLEY, MDC 2450 - Memphis District (Continuing): All modifications necessary will be made to increase the dredge depth of the HURLEY from 40' to 75'. This involves lengthening the existing dredge ladder, extending the hull to accommodate the longer ladder, and modifying the ladder hoisting mechanism. As presently equipped the HURLEY can effectively be utilized only to dredge the shallow draft channel of the Mississippi River. The ladder extension will allow the HURLEY to be used to maintain the deep draft channel from Baton Rouge to New Orleans, extending its useful dredge season to about 250 days per year. Modifications will be accomplished during the lay up period, which normally runs from December to June. Total estimated cost: $8,087,300. Through FY 2001: $1,427,100 for design. FY 2002: $1,505,000 to substantially complete design. FY 2003: $0. Future years: $5,155,200 to initiate and complete construction.

d. Other Floating and Mobile Land Plant:

(1) Derrickboat No.10, Crane and Shop Barge Replacement – Nashville District (New) The existing barge, which supports construction and maintenance activities on the 1,170 miles of navigable channels and 14 navigable locks within the Nashville District, is approaching the end of its economic life. It is used to transport equipment and structures related to lock and dam maintenance activities such as mobile cranes, lock closure structures, mooring cell templates and lock dewatering pumps. In addition the existing barge is under-sized to handle the increasing complex maintenance activities at the districts aging lock structures, and will not have the capacity to maintain the new Kentucky Lock Addition when it is completed. The proposed replacement will be a deck barge with spuds, a small workshop and a reinforced deck, which will allow the addition, in the future, of a crawler crane with heavy lift capabilities. This acquisition is consistent with the district's Floating Plant Improvement Plan, which will replace a number of smaller barges with a smaller number of larger capacity barges. Total estimate cost: $7,540,000. FY 200: $30,000 to initiate design. FY 2003: $6,880,000 to complete design and initiate construction. Future years: $630,000 to complete construction.

(2) Maintenance Gate Barge and Spare Gates – Rock Island (New) Existing gate barges, constructed in 1941 and 1970, each with a set of modular spare gates, were that can be configured to fit locks on the Mississippi and Illinois Rivers, are located in the St Paul District, in St. Louis Districts, respectively. The advanced age of the lock structures, over 60 years old, combined with the heavy usage results in both sets of spares being in use most of the time. In this situation there are no spares available to return a lock to service in the event of a failure of an additional structure. Without additional spare gate replacement capability, commercial traffic on the Mississippi River will be significantly delayed, with a substantial negative economic impact. An analysis was done to determine the potential economic impact of a shut down in the absence of additional spare to permit the rapid replacement of damaged gates. It was estimated that the economic cost to the region would be approximately $10,000,000 over the next 40 years, the estimated life of the gate barge. Total estimated cost: $4,710,000. Through FY 2001: $32,100 to initiate design. FY 2002: $5,000 for design. Fy2003: $4,470,000 to complete design and initiate construction. Future years: $202,900 to complete construction.

(3) Crane Barge MAZON Replacement – Rock Island District (New) The Crane Barge MAZON is used for strike removal and stone placement on the Illinois River, as well as for lock and dam work throughout the Illinois River basin from Chicago to Grafton and occasionally on other waterways such as the Ohio and Mississippi. The Crane Barge MAZON was built in 1974 and is at the end of its useful life. The crane, built in 1970, is continuously breaking down and the barge hull is worn thin and in need of repairs. In the last six years the barge has had an average of six weeks of down time per year due to repairs. The MAZON is required to be available 52 weeks of the year. The lack of a rapid response capability will delay navigation and cause economic harm to the Illinois Waterway. In addition, the MAZON has no restroom facilities, limited storage space and no travel capability for the crane. The estimated cost: $3,825,000. Through FY 2001: $25,000 to initiate design. FY 2002: $5,000 for design. FY 2003: $3,570,000 to complete design and initiate construction. Future years: $225,000 to complete construction.

(4) Crane Barge KEWAUNEE Replacement – Rock Island (New) The KEWAUNEE crane barge, which is 88 years old, is used to support the Quad Cities crane barge during gate changes and to provide daily support to structural maintenance gate repairs. The crane and barge are utilized daily during repairs to the miter gates and they are vital to the operation of the maintenance unit. The barge itself, constructed in 1913, was converted to a crane barge in 1981. Corrosion combined with normal wear and tear has deteriorated the existing barge to the point where repairs are no longer feasible and the crane is reaching the end of its life. The breakdown of the KEWAUNEE crane barge causes costly delays in the accomplishment of Districts' mission. Total estimated cost: $5,010,000. Through FY 2001: $28,400 to initiate design. FY 2002: $10,000 for design. FY 2003: $4,720,000 to complete design and initiate construction. Future years: $231,600 to complete construction.

(5) Towboat ROCK ISLAND Replacement – Rock Island District (New) The Towboat ROCK ISLAND is used to support the M/V Bettendorf to transport the structure maintenance fleet and tends the Derrick Boat KEWAUNEE during gate changes. This towboat is 31 years old and has developed extensive pitting on the hull exterior. This condition will require a costly hull replacement below the waterline. The internal black water holding tank, an integral part of the hull, has corroded through. The tank has been abandoned in place because of the high cost of replacement. Continued operation of the boat under current conditions will result in increased maintenance costs and reduced reliability. In addition, the ROCK ISLAND is underpowered and requires additional horsepower to safely move the fleet. Total estimated cost: $7,055,000. FY 2002: $10,000 to initiate design. FY 2003: $6,570,000 to complete design and initiate construction. Future years: $475,000 to complete construction.

(6) PEWARS Dock Crane Replacement – Pittsburgh District (Continuing) The PEWARS (Pittsburgh Engineer Warehouse and Repair Shops) is located on the Ohio River, Neville Island, PA. This facility supports the Pittsburgh District mission of maintaining 23 navigation facilities, 327 miles of navigable river and 15 flood control facilities. The dock crane is used daily to load and unload the government repair fleet between major maintenance jobs, to load and unload government materials, parts and supplies from contractor equipment servicing civil works projects, and to provide heavy lifting capacity at the dock front and the general capability to move parts, supplies and material within the warehouse facility. Two (2) 30-ton capacity rail mounted portal cranes erected in 1946 originally serviced the dock front at PEWARS. One crane was decommissioned in 1993 due to poor structural condition and was subsequently cannibalized for parts to keep the other crane in service. The facility is currently serviced by the remaining crane and a 30-year-old crawler crane. The scope of work performed at districts' navigation facilities continues to increase as the facilities age. This increased scope over the past 35 years has outpaced the lifting capacity of existing equipment and if not upgraded it will seriously impair the mission of the district. The economic analysis evaluated seven alternatives that ranged from status quo to privatization to acquisition through lease or procurement. The recommended alternative is replacement of remaining portal crane and crawler crane with a heavy lift stevedoring crane. This alternative was recommended over the slightly cheaper heavy lift stationary crane because its mobility will enable it to better meet the transfer needs at the Pittsburgh Engineer Warehouse and Repair Shops. Total estimated cost: $2,582,000. Through FY 2001: $67,700 for design. FY 2002: $2,485,000 to initiate construction. Future Years: $29,300 to complete construction.

(7) Towboat M/V George W. Britton Replacement MDC 2350– Huntington District (Continuing) The M/V George W. Britton (Towboat 71) is used to transport the Huntington District's Repair Fleet Floating Plant to perform scheduled and emergency maintenance to 400 miles of navigable channels and navigation structures on the Ohio and Kanawha Rivers. Huntington District's Floating Plant has increased in physical size, capacity and tonnage in recent years to nearly double its original size. The current power system on the Towboat provides 1200 horse power rating. Operations presently require two trips to transport existing floating plant from one project to another during high water periods. During these high water periods the Britton's rate of travel is often slowed to less than on (1) mile per hour pushing on one-half the Fleet. The under-powered condition of the Britton impairs the ability of the vessel master or pilot to move the fleet safely and efficiently. The economic analysis was done to compare to cost of keeping the existing towboat; re-powering; or the replacement thereof. The economic analysis showed that re-powering the Britton was slightly cheaper than the cost of acquiring a new towboat. However, rep-powering would only extend the useful life of the Britton by ten years. By contrast a new towboat has a 40-year life. Total estimated cost: $5,731,000. Through FY 2001: $54,600 for design. FY 2002: $5,240,000 completes design and initiate construction. FY 2003: $270,000 to substantially complete construction. Future Years: $166,400 to complete construction.

(8) Derrickboat No. 49 Replacement MDC 2313 - Huntington District (Continuing) The Derrickboat No. 49 is used to perform in house and major maintenance for nine (9) navigation structures on the Ohio and Kanawha Rivers and for timely response to breakdowns and emergency work required to keep 400 miles of navigable channels open to navigation. Derrickboat No. 49 was built in 1951 and at 49 years old is reaching the end of its economic life. Technology and government standards have changed significantly since No. 49 was constructed, which necessitates expensive modifications and retrofitting. In addition, many of its parts and operating systems are now obsolete and replacement parts are difficult to obtain. Also, the existing derrickboat does not have sufficient capacity to handle

the more massive components such as culvert valves, maintenance bulkheads, and dam operating equipment. An economic analysis was done to compare the cost of acquiring a new derrickboat with the cost of a complete rehabilitation of the existing Derrickboat. This economic analysis showed that acquisition of a replacement derrickboat was more cost effective (NPV savings of $15.5 million) than rehabilitation of the existing boat. Total estimated cost: $2,545,000. Through FY 2001: $13,900 for design. FY 2002: $2,289,000 to complete design and initiate construction. FY 2003: $200,000 to substantially complete construction. Future Years: $42,100 to complete constructions.

(9) Surveyboat ESSAYONS Replacement MDC 2529 – Philadelphia District (Continuing) The Surveyboat ESSAYONS is used to perform hydrographic surveys and extract bottom soil samples for maintaining the navigational waterways within the Philadelphia District. These waterways include the Delaware River and Bay, the Chesapeake and Delaware Canal and the upper Chesapeake Bay. The Surveyboat ESSAYONS was built in 1965 and is now 35 years old. Due to its advancing age the Surveyboat ESSAYONS requires frequent expensive maintenance and repair and parts are becoming difficult to acquire. The general condition of the Surveyboat will continue to deteriorate and will be subject to frequent and costly breakdowns, which will impact the efficient surveying and maintenance of the Philadelphia District's waterways. The economic analysis was done to compare to cost of keeping the existing vessel or the replacement thereof. The economic analysis showed replacement of the Surveyboat ESSAYONS was the more cost effective than maintenance of the status quo, with a NPV savings of approximately $650,000. Total estimated cost: $1,020,000. Future Years: $1,020,000 for design and construction.

(10) Towboat M/V LIPSCOMB Replacement MDC 2520 – Vicksburg District (Continuing) The M/V LIPSCOMB is used in support of revetment construction and maintenance along approximately 1,000 mile of navigable channels on the Mississippi, the Atchafalaya and Red Rivers and Channel Patrol on the Mississippi River. The M/V LIPSCOMB was built in 1958 and is now 42 years old and has outlived its normal economic life by 2-1/2 years. Furthermore the LIPSCOMB has zero compartment floodability, which constitutes a major safety issue for crew and passengers. Current Corps standard is one-compartment damage stability for this type vessel. The proposed replacement would have increased horsepower and a modernized hull design for increased towing and operational efficiency. The new vessel would also permit a reduction in the crew size. An economic analysis was done to compare to cost of keeping the existing vessel with the cost of acquiring a replacement. It showed that replacement of the LIPSCOMB was more cost effective, with a NPV of $35.8 million, 20% less than the alternative, than maintaining the status quo. Total estimated cost: $5,939,000. Through FY 2001: $30,000 to initiate design. FY 2002: $5,480,000 to complete design and initiate construction. FY 2003: $280,000 to substantially complete construction. Future Years: $149,000 to complete construction.

(11) Six (6) Deck Cargo Barges Replacement MDC 2543 – Rock Island District (Continuing) Deck Cargo Barges are used to transport riprap to repair and construct water control structures on the upper and Mississippi and lower Illinois Rivers. This is necessary for the maintenance of the 9' channel required for navigational traffic. The six barges to be replaced (545, 549, 653, 900, 901 and 903) are no longer serviceable. They have developed structural problems with the deck plate and internal bulkheads due to years of rough usage being loaded with heavy rock, up to 400 LBS. The Fish and Wildlife Service has recommended the use of heavier rock (up to 700 LBS) for repairs and bank protection. The extended use and increase poundage will cause additional wear and caving of the deck surfaces of the old barges, which may precipitate early retirement from service before a catastrophic failure occurs. The loss of the barges represents a loss of capability of 25% with a loss of efficiency of 35% due to increase in time to transport material. The economic analysis was done to compare the cost of replacing the 6 barges with cost to remove the barges from service and contract out the mission essential work. The economic analysis showed replacement of the barges was the most cost effective (NPV savings of $1.6 million) of the alternatives. Total estimated cost: $4,100,000. FY 2002: $4,035,000 for design and to initiate construction. FY 2003: $55,000 to substantially complete construction. Future Years: $10,000 to complete construction.

(12) Surveyboat M/V San Antonio Replacement – Galveston District (Continuing) The San Antonio is used for hydrographic surveying of the Galveston District's navigable waterways. Replacement is required because the existing vessel, built approximately 34 years ago, is aging and does not have the space or stability required and needed to utilize current hydrographic surveying equipment. The San Antonio is not able to execute fully the mission in inland waterway channels and offshore where sea conditions exceed 2 1/2 to 3 feet. The San Antonio replacement survey boat will serve as the primary platform for obtaining multi-beam surveys. Total estimated cost: $881,800. Through FY 2001: $859,800 for design and to substantially complete construction. FY 2002: $22,000 to complete construction.

(13) Surveyboat C. M. WOOD Replacement – Galveston District (Continuing) The C.M. WOOD is used for hydrographic surveying of the Galveston District's navigable waterways. Replacement is required because the existing vessel, built approximately 33 years ago, is aging and does not have the space or stability required and needed to utilize current hydrographic surveying equipment. The C.M. WOOD is not able to execute fully the mission in inland waterway channels and offshore where sea conditions exceed 2 1/2 to 3 feet which limits utilization of the C.M. Wood to less than 150 days a year. Especially important is a capability to respond in a timely fashion to perform final surveys when a contractor completes dredging. A timely response reduces potential for disputes or claims over final quantities. An economic analysis compared the cost of replacement with the costs of leasing a survey boat and the cost of modifying an existing boat to meet current operational requirements. This net present value analysis showed that acquisition of a new survey boat ($2,096,300) was less costly than either leasing ($4,007,300) or modifying an existing boat ($2,801,400) Total estimated cost: $975,000. Through FY 2001: $149,900 for design. FY 2002: $825,100 to initiate and complete construction.

(14) 55 foot Surveyboat M/V ALEXANDER Replacement MDC 2459- New Orleans District (Continuing) The ALEXANDER is used for hydrographic surveying of the New Orleans's District's navigable waters. Replacement is required because maintenance costs are escalating due to the age of the vessel and the design of the ALEXANDER is not well suited to its present mission. The ALEXANDER is a larger vessel than is needed to run cross sections in the Mississippi River deep draft crossings, its normal work site. Due to the implementation of global positioning systems on board the vessel, more cross sectional surveys are required. Therefore, a smaller vessel, designed for a crew of two, would be more functional. Replacement of the existing surveyboat with a lighter smaller vessel will allow surveys to be done quicker and with less fuel, saving time and money. The net present value analysis comparing the cost of a new vessel with cost with leasing a similar vessel ($4,328,600) and with continuing to operate and maintain the ALEXANDER ($3,923,000) showed that acquisition of a new survey boat ($3,800,400) was the most cost effective of the alternatives. Total estimated cost: $1,404,000. Through FY 2001: $1,280,900 for design and to initiate construction. FY 2002: $125,500 to substantially complete construction. FY 2003: $9,500 to complete construction.

(15) Replacement Towboat, M/V RAYMOND C. PECK (MDC 2389) - Pittsburgh District (Continuing) The M/V PECK is a 1200 HP diesel powered towboat used in mobilization of the district repair fleet for major maintenance of 23 navigation structures on the Ohio, Allegheny and Monongahela Rivers; channel maintenance of 327 miles of navigable river; and for response to navigation emergency situations. The existing vessel, which was constructed in 1983, is underpowered relative to current demands, which often results in double-tripping when tow size, river or weather conditions require. An economic analysis showed that it would be less than 2% cheaper to repower the PECK to 2400 HP than to replace it with a new vessel. However, while repowering is the cheaper of the alternatives, new construction was favored because of concerns regarding how well the repowered vessel would handle and because the repowered vessel would be likely to have significantly higher operations and maintenance costs to keep it operational for the assigned 40 year life. Total cost: $5,474,300. Through FY 2001: $54,300 for design. FY 2002: $5,160,000 to initiate construction. FY 2003: $150,000 for construction. Future years: $110,000 to complete construction.

(16) Survey Boat GRANADA Replacement, MDC 2425 - New Orleans District (Continuing) The GRANADA is used for hydrographic surveying of the New Orleans District's navigable waterways. Replacement is required because the existing survey boat was constructed in 1971 and is approaching the end of its economic life. Maintenance costs are escalating due to the age of the vessel, and the steel hull has deteriorated over the years. In addition the weight of a steel hull significantly reduces speed and increases fuel consumption. An economic analysis comparing the alternatives of replacing the GRANADA with continuing to operate and maintain the existing plant favored the construction of a replacement. Total estimated cost: $1,485,100. Through FY 2001: $1,475,600 for design and to substantially complete construction. FY 2002: $9,500 to complete construction.

(17) Derrickboat No. 6 Replacement, MDC 2446 - St. Louis District (Continuing) The existing Derrickboat No. 6 is over 30 years old. It requires replacement because the hull plating has become thin due to wear and age. In addition its hydraulic crane, which is 13 years old, requires extensive repair due to heavy use. An economic analysis comparing the cost of a new derrick boat with the cost of repairing/rehabilitating the existing boat favored acquiring a new boat because it would save over $2.2 million over its useful life. The economic analysis also established a present value savings of over $800 thousand. The Derrickboat No 6 is attendant plant in support of the Dredge POTTER, which is used for placing/moving dredging anchors, transferring supplies and materials between the riverbank and the dredge. During the season when the dredge is laid up, the Derrickboat supports repairs to the dredge, pipeline and other plant. Total cost: $1,633,300. Through FY 2001: $1,538,300 for design and construction. FY 2002: $85,000 to substantially complete construction. FY 2003: $10,000 to complete construction.

(18) Panama City Crane Barge Replacement, MDC 2427 - Mobile District (Continuing**)** The Panama City Crane Barge performs snagging, riprap placement, minor clamshell and drag bucket dredging, pile driving, and other general navigation channel maintenance tasks on the Apalachicola-Chattahoochee-Flint River (ACF) system and the Gulf Intracoastal Waterway. The present crane barge was locally constructed in the 1960's making maximum use of components and materials obtained from surplus. It was constructed around a surplus deck barge built in 1940. With the present 40-ton crawler crane, the lifting capacity of the crane barge combination is grossly inadequate for the plant's mission. A larger crane cannot correct the problem because it would be severely limited by the barge's narrow 30' beam and 110' length. The replacement-floating crane will eliminate all the shortcomings of the existing plant. It will also be capable of supporting routine maintenance of locks and dams on the Black Warrior and Tombigee and Alabama Rivers, which now requires use of the larger capacity Debris Boat ROS, which is more costly to operate. Four alternatives were considered; construction of a new crane the least costly. The net present value of the PRIP alternative is $2.5 million, compared to $8.7 million, $8.8 million, and $12.7 million respectively for the Status Quo, Rehabilitation and Lease alternatives. Total estimated cost: $7,446,800. Through FY 2001: $6,247,900 for design and initiate construction. FY 2002: $360,000 to substantially complete construction. FY 2003: $20,000 to complete construction.

(19) Survey Boat GATLIN Replacement, MDC 2428 - Mobile District (Continuing) The Survey Boat GATLIN conducts hydrographic surveys in support of dredging and other channel maintenance activities for Gulf Coast harbors and for the stretch of Gulf Intracoastal Waterway within the district's area of responsibility. The existing survey boat was constructed in 1973 and will require major rehabilitation if it is not replaced. The existing vessel also suffers from a design deficiency, which limits its capacity to carry out its mission in rough seas. The proposed replacement will reduce the percentage of days when surveys cannot be done from 40 to 15%; it will also increase productivity through an increase in speed from 16 to 40 knots which will reduce transit times to survey sites. The economic analysis comparing the costs of a new vessel with costs of leasing a similar vessel, rehabilitating the GATLIN and the status quo showed that acquisition of a new survey boat was the most cost effective of the alternative. Total cost: $1,634,000. Through FY 2001: $1,469,000 to complete design and initiate construction. FY 2002: $120,000 to substantially complete construction. FY 2003: $45,000 to complete construction.

(20) Tender KIMMSWICK Replacement, MDC 2413 - St. Louis District (Continuing) The KIMMSWICK tends the Dredge POTTER. It is used for positioning the pipeline, placing anchors, towing the dredge between locations and transporting personnel. The KIMMSWICK is 29 years old. The hull plating is thin due to wear and age. The diesel engines are 10 years old and in need of overhaul. Electrical/mechanical systems are original and have become unreliable. Need for a dredge

tender continues. The daily rate for a new vessel is estimated to be $1,800, and the present rate of the KIMMSWICK ($1,200) is expected to rise to $2,000 per day due to the need for major hull work and engine overhaul. Based on a savings of $1,137,197 over the life of a new vessel and a present value of savings of $290,645, it is recommended that the Tender KIMMSWICK be replaced. Total estimated cost: $2,227,700. Through FY 2001: $2,107,700 for design and construction. FY 2002: $115,000 to substantially complete construction. FY 2003: $5,000 to complete construction.

(21) Tugboat PILOT Replacement - Philadelphia District MDC 2317 (Continuing) The PILOT was built in 1941 (56 years old) It requires frequent maintenance and repair parts are expensive and extremely difficult to acquire. It has a single screw with 345 horsepower. The prospective new tugboat will have twin screw propulsion that has more maneuverability and is safer when towing barges and floating pipeline. Comparison of net present values of construction of a new tugboat versus the costs to place the PILOT in first class condition indicates estimated savings to the civil appropriations of approximately $12 million over the life of the new vessel. Total estimated cost: $2,850,100. Through FY 2001: $38,900 to initiate design. FY 2002: $5,000 for design. FY 2003 $5,000 to complete design and initiate construction. Future Years: $2,801,200 to initiate and complete construction.

(22) Survey Boat SENTRY (HATTON) Replacement, MDC 2399 - New York District (Continuing) The survey boat SENTRY's replacement will be used to perform year-round hydrographic survey work in offshore or unprotected waters as well as protected waters in the New York Harbor area. If the SENTRY is not replaced, New York District's ability to fulfill its mission of maintaining the federal channels under authority of the River and Harbor Acts will be seriously degraded. An additional new requirement for the District is the Phase II deepening of Newark Bay, Kill Van Kull to Howland Hook, scheduled for construction from 1999 through 2008. The use of a new high technology survey vessel and equipment will be required. Secondary missions of the vessel will include side scan survey operations, water quality sampling, oceanographic survey station keeping, soil sampling, current meter placement, diver support, inspection tours, and emergency operations in New York Harbor. Economic analysis shows that new construction is about $40,506 less per year (present value terms) than the status quo. The analysis also shows savings to investment ratio (SIR) of 1.23, that is, for every dollar invested in new construction, $1.23 in savings will result. Based upon a cost differential (savings) of $8.3 million over the life of a new vessel and present value savings of $2.9 million, it is recommended that the SENTRY be replaced. Total estimated cost: $2,042,700. Through FY 2001: $1,732,700 for design and to initiate construction. FY 2002: $150,000 for construction. FY 2003: $150,000 to substantially complete construction. Future years: $10,000 to complete construction.

(23) Quarterboats 6381 and 6008 Replacement, MDC 2302 - Vicksburg District (Continuing): Quarterboats 6008 and 6381 were constructed in 1963 and 1960 respectively, and have reached the end of their useful lives. Neither vessel meets U.S. Coast Guard standards for housing personnel. Options considered in addition to the recommended option of replacing both boats with a single larger vessel: rehabilitating one or both of the existing boats, leasing quarterboats, and utilizing hotel/motels in the vicinity of work sites to house personnel. The most expensive alternatives were leasing and utilizing hotels/motels in the vicinity of the work sites. In addition, quarterboats for lease are not readily available and at some sites commute distances to motels/hotels would be as much as 80-90 miles. The alternative of rehabilitating the existing quarterboats was less costly than new construction; however, it would extend their economic life only by 20 years, while a new vessel would have a life of 40 years. For this reason, because the NPV differential between the two alternatives, analyzed over 20 years, was not great, the alternative of constructing a single new vessel is recommended. Total estimated cost: $10,605,200. Through FY 2001: $10,595,200 for design and to substantially complete construction. FY 2002: $10,000 to complete construction.

(24) Crane Barge 7 Replacement, MDC 2360 - Rock Island District (Continuing): The existing crane barge consists of a crawler crane, mounted on a spud barge. The unit is used for structural repairs on the Illinois Waterway. The barge, constructed in 1959, was originally designed as a 34' x 104' x 8' deck cargo barge. This existing barge has reached the end of its useful life and is no longer economically reparable. The width of this spud barge makes it an unstable platform for a lift crane. Recent evaluations indicate the crane barge combination in its current configuration is operating at reduced safety and efficiency. The existing, fully operational 150-ton crane, purchased in 1988, will be mounted on the new spud barge. The replacement crane barge will be designed and constructed utilizing an existing concept being developed by Marine Design Center. This unit, when constructed and delivered, will continue to be used in direct support of the Illinois

Waterway project to perform structural repairs to locks and dams, strike removal, and maintenance of channel regulating structures. Total Estimated Cost: $3,220,000. Through FY 2001: $3,182,700 for design and to substantially complete construction. FY 2002: $37,300 to complete construction.

(25) Crane Barge 8 Replacement MDC 2361 - Rock Island District (Continuing): The existing crane barge consists of a crawler crane mounted on a spud barge. The unit is used for structural repairs on the Illinois Waterway. The barge, constructed in 1959, was originally designed as a 34' x 104' x 8' deck cargo barge, and is identical to Crane Barge 7. The barge has reached the end of its useful life and is no longer economically reparable. The width of the existing barge makes this an unstable platform for a lift crane. Evaluations indicate the crane barge combination is operating at reduced safety and efficiency. The existing, fully operational 150-ton crane, purchased in 1988, will be mounted on the new spud barge. The crane barge will use the standard design being developed by Marine Design Center. This unit will be used in direct support of the Illinois Waterway project for work similar to work being performed by Crane Barge 7 Replacement. Total Estimated Cost: $3,220,000. Through FY 2001: $3,176,300 for design and initiate construction. FY 2002: $43,700 to complete construction.

(26) Office Barge Replacement - Rock Island District, MDC 2320 (Continuing): The existing District Office Barge was fabricated in 1966 using a deck cargo barge built in the 1940s, pouring a lightweight concrete slab on the deck, and erecting a prefabricated metal pole building on the concrete slab. The existing office barge is in poor condition, with numerous hull leaks. The metal on the hull is suffering metal fatigue, and it has a short life expectancy. This office barge is used as a combination office/locker room/galley for the District Mississippi River structural repair crew. It is used year-round in all weather conditions. In addition, it is proposed to make the new office barge larger, which will result in the elimination of a second, smaller office barge. This will consolidate all personnel assigned to the section on one barge, reducing both the fleet size and winter heating requirements. The replacement barge design dimensions replicate existing barge dimensions so that the new office barge can be easily accommodated in tow with other barges. This replacement office barge will provide safe and efficient office space, locker room, and galley or break area for the thirty-person crew of the Mississippi River project. Total Estimated Cost: $2,647,800. Through FY 2001: $2,577,800 design and to substantially complete construction. FY 2002: $70,000 to complete construction.

(27) Replacement Derrickboat, MONALLO, MDC 2400 - Pittsburgh District (Continuing): The existing Pittsburgh District heavy-lift floating crane MONALLO II is a 145-ton marine revolver type crane. The vessel is used in support of major maintenance and repair activities for the twenty-three (23) navigation structures on the Ohio, Allegheny and Monongahela Rivers, channel maintenance of 327 miles of navigable rivers and emergency response situations. Since delivery of the existing Derrickboat in 1954, construction of new navigation projects in the Pittsburgh District with larger, heavier components has out-paced the capacity of this floating crane. The District currently and historically performs 4 to 5 lock chamber unwaterings per year. During these scheduled unwaterings, the miter gates are lifted, removed and repaired as necessary. In addition to utilizing the vessel for project maintenance, the District also maintains an emergency response capability to restore navigation in the event of natural disaster or man-made disasters such as barge breakaways and collisions. The Derrickboat MONALLO II is currently 42 years old and spare parts for the vessel and its machinery are increasingly difficult to locate and repairs increasingly more expensive. Acquisition of a replacement vessel with greater capacity will provide the capabilities required to safely and efficiently perform the operations and maintenance mission of the District. Total Estimated Cost: $9,146,500. Through FY 2001: $8,946,500 for design and construction. FY 2002: $190,000 to substantially complete construction. FY 2003: $10,000 to complete construction.

(28) Towboat GRAND TOWER Replacement, MDC 2235 - St. Louis District (Continuing): The existing vessel GRAND TOWER is a twin-screw diesel-powered towboat constructed in 1970. The GRAND TOWER is 24 years old and has reached the end of its useful service life. Hull integrity is marginal due to thin plating. Diesel engines are 10 years old and will require major overhaul within the next 3-5 years. The GRAND TOWER is used to tow a crane barge to locks on the Mississippi River for use in miter gate pulls, removal of drift; and repair of gate operating machinery. The existing vessel is also used during repair work to switch floating plant such as the Derrickboat SEWELL, Spare Miter Gate Barge and Crane Barge Number 1. As the fleet service boat, the GRAND TOWER is used to switch boats and barges at the Service Base Fleet into position for repair work, arrival, departure and material handling. At times, the GRAND TOWER is the only vessel available at the Service Base to respond to distress situations such as man overboard, loose barges from upstream, and retrieval of Corps floating plant which sometimes breaks loose. Total estimated cost: $3,204,800. Through FY 2001: $3,194,800 for design and construction. FY 2002: $10,000 to complete construction.

(29) Gate Lifter Crane (Derrickboat) MDC 2305 - Louisville District (Continuing): The Ohio River and its tributaries provide over 2500 miles of navigable channel. In 1990, about 240 million short tons were moved by barge traffic. The system includes 60 navigation lock and dam facilities ranging from 10 to 150 years old. Since 1960, system-wide tonnage has more than doubled. This increased usage also results in increasing maintenance needs; closure costs have become higher and disruption to lock users is becoming more significant. Repair and maintenance typically involve replacement of miter and quoin contact blocks, replacement of pintles and gate painting. The whole process involves dewatering the chamber, jacking the gate "in-place" with temporary structural support, doing the repairs or maintenance "in-the-dry", and then realigning the whole gate to within 1/8 inch tolerances. Repairing both ends of the lock totals 35-42 days, trimming all time to the bare minimum using specialized equipment. Navigation accidents can require complete replacement of gate leaves. No spares are available and a new gate takes 3-6 months to fabricate. Fourteen options were considered. The selected option changes the whole process. It involves swapping gates and doing gate work away from the lock chamber. To implement this change, each lock requires the following: purchase of one pair of spare gate leaves; design and construction of storage and work areas for spare gates; design and modification of miter and quoin contact blocks and wall quoin contact blocks to quicken repairs and alignments; modification of existing gates to allow lifting by cranes; and, modification of the existing gate anchorage's to allow faster gate removal. To swap the gates, Louisville District will purchase a 700-ton barge-mounted gate-lifter crane to be shared by all locks on the Ohio River or elsewhere as needed. For scheduled major repairs, the closure timesavings per lock per event will be 20 to 25 days with the new process. An economic model computed system wide transportation savings from implementation of the selected option. The costs include the crane and all modifications for the gate-change-out capability at the locks. The net benefits are about $13 million annually for a 50-year projected life. The benefit/cost ratio is 4:1. A crane with the versatility and capacity needed cannot be rented. A competitive proposal process with a design/build contract will purchase the crane. This should allow crane manufacturers to propose standard equipment meeting our specifications. Particular emphasis is placed on compatibility with the unique features of the structures served during its 50-year life. To insure this, a team of experienced personnel will develop performance and evaluation criteria. Total estimated cost: $19,196,300. Through FY 2001: $18,946,300 for design and to substantially complete construction. FY 2002: $250,000 to complete construction.

e. Fixed Land Plant and Automated Systems

(1) Interactive Vessel Simulators Replacement – Waterways Experiment Station (New) The existing vessel simulator was acquired in 1983 and last upgraded in 1994. Its primary purpose is to evaluate and optimize proposed changes in Federal navigation channels. With the capability to simulate either a ship or tow, it operates in real-time and is used by actual vessel pilots to help finalize channel designs. The need to maintain the capability to design and improve the nations' navigation system will remain high as the world's ocean-going fleet increases in size and as vessel throughput becomes a more critical economic factor. Application of a simulator will help reduce maintenance and construction costs and ensure that project s is optimized for navigation safety. Maintaining existing simulator is no longer cost effective. The equipment continues to deteriorate and replacement parts have become harder to obtain which results in downtime that has affected project time schedules. Total estimated cost: $980,000. FY 2003 requirement: $980,000.

(2) Facilities and Equipment Maintenance (FEM) System – Corps-wide (Continuing) Facilities and Equipment Maintenance (FEM) was developed by the Department of Defense (DOD) Joint Logistics Systems Center (JLSC) (now managed by the DOD Program Manager – Navy Systems Support Group) to meet the needs of DOD organizations with equipment and facilities maintenance responsibilities. Presently the components of the Air Force, the Navy, the Marines, and the Army are utilizing FEM to manage equipment and facility maintenance. FEM has two principal benefits for the Corps. First, it provides a standard system for managing maintenance requirements of Civil Works projects, facilities and equipment. In the absence of a standard system, field offices have either developed their own automated tools or have continued to manage with non-automated paper-based processes. Implementation of FEM will eliminate duplicative software development and maintenance efforts and extend the efficiencies of automated maintenance management to all Corps activities. Automation of maintenance management in general, and FEM in particular will extend equipment/plant service life, reduce maintenance labor costs, and reduce the replacement part inventory requirements. Second, FEM provides the Corps with a proven system based on a commercial off-the-shelf (COTS) application that interfaces with other Corps legacy systems such as the Corps of Engineers Financial Management System (CEFMS), Automated Personal Property Management System, Real Estate

Management Information System, and will also replace the functionality current provided by the Vehicle Information Management System. This system is also the information technology enabler for the operations and maintenance piece of the Corps Project Management Business Process. In addition, FEM will standardize the maintenance business process Corps-wide. The estimated capital cost for implementing FEM was identified as $4,562,000 initially, which was adjusted for an additional cost of $2,313,000 due to a change in pricing and settlement of a contract dispute. This baseline submission did not adequately address system interface costs, which was discovered during the development phase. This resulted in additional surveys of Corps activities to identify additional data and local legacy systems that would require contractor support in converting to the new system. The will result in increase requirements to support the change required to realize business values and efficiencies associated with the automated tool. A revised Benefit Cost Analysis (BCA) validated business value benefits with a Net Present Value of $3.578M with annual cost avoidance of $1.285M in FY 02, $2.812M in FY 03 and $4.149M. Total estimated cost: $6,875,000. Through FY 2001: $6,778,300 for development. FY 2002: $96,700. Additional requirements for FY2002 and FY2003 to complete and deploy FEM will be submitted in accordance with the language on page 42 of House Report 107-258.

(3) Document Imaging - Corpswide (Continuing): The Corps-wide document imaging program was initiated in FY 97 based on a pilot test and an economic analysis that showed a cost benefit ratio of 1:2. The pilot test demonstrated the feasibility the technology and confirmed the benefits assumed in the economic analysis. The principal benefits are increased productivity due to the savings from ready access to documents and other digitized material, and reduced space requirements due to a reduction in paper storage. During FY 99, the Corps determined to pause in its implementation of document imaging while it evaluated the costs and benefits of an expanded program to include workflow and electronic document management, along with elimination of onsite file storage requirements. The economic analysis for this Electronic Document Management System (EDMS) will be prepared and evaluated during FY 02. Total estimated hardware and software investment costs for document imaging alone: $12,500,000. Through FY 2001: $3,403,800 for a pilot test, and to initiate hardware and software acquisitions. FY 2002, FY 2003, and future years: To be determined based on the results of the economic analysis of the expanded document imaging, workflow and electronic document management program.

(4) Water Control Data Systems (WCDS) Software Development - Corpswide (Continuing): This software modernization effort involves the development of a standardized suite of software which all Corp activities will use to monitor, manage and operate the Corps water control facilities nationwide. This modernized UNIX driven, workstation-based automated information system will utilize the Corps standard database management system, ORACLE, and the Corps of Engineers Enterprise Infrastructure Services (CEEIS) network for moving data and information within the Corps. This modernization will greatly improve the Corps ability to perform its basic water management mission including water control decision making by improving hydrologic forecasting and making water control data universally available to all Corps users and Corps customers. These improvements will increase all project benefits (flood control, water supply, navigation, irrigation, hydropower, water quality, and recreation) In addition, this effort will save local software development costs, running in the neighborhood of $1 million annually. This effort is being managed in accordance with the requirements of the Army's Life Cycle Management of Information Systems (LCMIS) program. The projected Corps-wide benefit to cost ratio is well in excess of 1:1; a complete economic analysis will be included as part of LCMIS milestone I/II review and approval process. Total estimated software investment cost: $7,603,000. Through FY 2001: $6,799,000 for development. FY 2002: $625,000 for implementation. FY 2003: $178,000 to complete.

(5) Project Management Information System, P2 - Corpswide (Continuing) P2 is a commercial-off-the-shelf (COTS) configured application replacement for the Project Management Information System (PROMIS) as the next generation of program and project management software. Like PROMIS, P2 will serve as the primary tool for project and technical managers within the Corps to maintain program and project data. P2 will provide a single source of all project-related information for all programs and projects managed by field commands, and will interface with other modernized systems to assure single source data entry. P2 will enable streamlined project management and resources, and be a major improvement in the Corps project management planning capability. P2 integrates and capitalizes on advances in commercial project management software, wider availability, Web interfaces, and lower costs, which will provide a more cost-effective alternative to PROMIS. This was substantiated by a cost/benefit analysis of the COTS alternative. The principal benefits are lower costs to maintain and upgrade COTS software in future years. Total development cost of PROMIS through FY 2000: $11,446,000 of which $6,338,000 funded by the revolving fund for

development, deployment and for additions and betterments. The original cost estimated for P2 was $12,500,000, which was increased to $15,722,000; an increase of $3,222,000 due to increased cost and for the procurement of a corporate network analysis software, not previously identified. This baseline submission did not identify additional computer servers, related hardware, and develop legacy system interfaces necessary for P2 to meet the functional requirements in the above scope. This resulted in additional increase requirements. An economic analysis to validate costs/benefits of this initiative is currently underway. Total estimated cost: $15,722,000. Through FY 2001: $13,057,605 for development. FY 2002: $2,664,395. Additional requirements for FY2002 and FY2003 to complete and deploy P2 will be submitted in accordance with the language on page 42 of House Report 107-258.

(6) Corps of Engineers Automation Plan (CEAP) (Continuing): The capital acquisition portion of CEAP, renamed Corps of Engineers Enterprise Infrastructure Services (CEEIS) was created to replace the Corps mainframe computing hardware consisting of leased Honeywell's at the division level and Corps-owned Harris computers at the district level. The Corps awarded a contract to the Control Data Systems, Inc., in October 1989 for hardware/software acquisition and support services. The contract was structured for maximum flexibility, not committing the Corps beyond the first year but providing the Corps with 10 annual renewal options. The contract also provided for a pilot test at the Southwestern Division, the Waterways Experiment Station, and the former Headquarters' Engineer Automation Support Activity. Based on pilot and stress test results and a cost comparison of various deployment scenarios, the Corps redeployed pilot test equipment to two large regional processing sites, one in Portland, Oregon and the other in Vicksburg, Mississippi. To maintain a viable corporate-wide system at these two regional sites, the Corps has invested in additional mainframe processing capacity, operating software, additional storage capacity, communications devices, and associated processors to link all Corps sites to the two regional centers. Total estimated cost: $88,460,200. Through FY 2001: $76,910,200. FY 2002: $4,500,000. FY 2003: $5,050,000. Future Years: $2,000,000.

(7) Recurring ADPE Requirements Corps-wide (Continuing): This grouped item includes general purpose microcomputers, graphics display terminals, interactive terminals, plotters, remote job entry devices, digital communications equipment supporting Corps ADPE. Also included are dedicated word processing centers, microcomputers used for such office functions as word processing, electronic mail, spread sheet applications, small data base applications, Headquarters Local Area Networks centralization, and communications with main frame computers for storage and retrieval of management information. Recurring ADPE is utilized to improve the interfaces between separate computer configurations, to improve the communications transmission capability, and to replace ADPE that has reached the end of its useful life. Microcomputers are justified on a cost benefit basis to support both management and business, and scientific applications. The demand for quick access to accurate information at operational levels has generated requirements for ADPE in functional areas where it was previously absent or in functional areas where modern upgrade is required. All recurring ADPE requirements will be reviewed for consistency with the Corps of Engineers Information Systems Management Plan. FY 2001 and prior requirement: $5,023,200. FY 2002 requirement: $1,398,500. FY 2003 requirement: $1,403,800. Future requirement: $1,800,000

f. Tools, Office Furniture and Equipment

Headquarters Relocation (Continuing): The Corps has completed its relocation of Headquarters activities from the Pulaski Building to the 3rd floor of the General Accounting Office (GAO) Headquarters building at 441 G St. NW. In addition, the Corps proposes to lease an additional 17,500 square feet on the 6th floor of the GAO building on approximately the same terms favorable to the Corps as in the 3rd floor lease. This additional space, which was not available when the Corps initially planned its move from the Pulaski Building, will permit the Corps to relocate approximately 70 Headquarters personnel who are currently located at the Humphreys Engineer Center, near Ft. Belvoir, in Alexandria, Virginia, to the GAO Building. The additional cost of this relocation, including renovation of the space on the 6th floor, systems furniture, and phone and local area network wiring costs is $2,922,000. As previously, an equitable share of the renovation costs will be recovered via rent reductions over the life of the lease. Use of the Revolving Fund was authorized in Title I, Energy and Water Development Appropriations Act, 1999, P.L. 105-245. Total estimated cost: $33,130,300. Through FY 2001: $32,715,300 for design and substantially complete construction and relocation. FY 2002: $415,000 to complete the relocation.

PROGRAM TITLE: Support for Others, FY 2003

JUSTIFICATION:

Support for Others (SFO), the manpower for which is separately resourced by the Office of Management and Budget, is reimbursable work performed by the Army Corps of Engineers and funded by various Federal agencies, states, political subdivisions of states, and other entities, under applicable Federal law. The program fills a void for many agencies, which do not have adequate capability to execute the engineering related needs; of their missions or manage the engineering or construction contracts with private firms. The reimbursable assistance the Army Corps of Engineers provides is primarily related to technical oversight and contract management.

In FY 2003, the Army Corps of Engineers estimates support will be provided to over 60 various Federal agencies. The estimated dollar value of our efforts including construction is estimated to be $800 million. The actual program size will depend on several factors: the requesting agency's appropriation which is often not known until the first quarter of the fiscal year, final agency decisions made on how and when the appropriated funds will be dispersed for projects, and the magnitude of natural emergencies.

MAJOR FEATURES OF THE FY 2002 PROGRAM:

The Corps executed $820 million worth of work in support of non-DoD agencies. This work consists of one large (~$260 million) reimbursable program [Superfund program for the Environmental Protection Agency (EPA)] and support to approximately 60 other Federal agencies, ranging in size from a few thousand to over $100 million and unique technical services (not readily available from the private sector) to some State and local governments. Since 1998 the Corps has had special Congressional authorization to provide engineering, environmental and construction management services to the District of Columbia Public Schools to assist them in bringing their schools up to building and safety code requirements. The Corps also supports EPA on its Construction Grants programs as well as performing review and coordination of the planning, design and construction of EPA facilities.

Examples of work for other Federal agencies in FY 2002 include environmental compliance assessments for the Natural Oceanic and Atmospheric Administration (NOAA); construction grant monitoring for the Department of Housing and Urban Development; design and construction of facilities for Department of Justice agencies, Immigration and Naturalization Service and Bureau of Prisons; and study, design, engineering, and construction assistance for various Department of Interior agencies such as the National Park Service, the Fish and Wildlife Service, and the Office of Insular Affairs. One potentially large and unpredictable program is that of the Federal Emergency Management Agency (FEMA). The largest component support to FEMA occurs as a result of natural disasters where the type and magnitude of support is unpredictable.

ACCOMPLISHMENTS FOR FY 2003

The Corps will execute approximately $800 million in support of other agencies programs in FY 2003 which will include: Environmental Restoration related work - $250 million of work related to the EPA's programs and $50 million of environmental restoration work for other agencies and Facilities and Infrastructure related work - $500 million of work related to engineering, design and construction such as the design and construction of dormitories, administration and detention facilities for the Immigration and Naturalization Service, emergency management in support of FEMA and improving homeland security measures for several Federal agencies.

AUTOMATION COSTS

The Army Corps of Engineers utilizes automated information systems (AIS) in all phases and aspects of its operations from the planning and design of projects through their operation and maintenance; from the collection and analysis of hydrographic data to control flows in the nation's rivers to the management of fiscal and human resources; and from the search for legal precedents to the review of construction contractor performance histories. Civil Works expenditures for automated information systems include acquisition of commercial software packages and the design and development of applications to meet unique engineering requirements; the acquisition of personal computers for use on desks and the mainframes for processing centers used by thousands of employees; and the leasing of long distance lines for E-mail and high speed transfer of engineering and other data among Corps of Engineers locations.

The projected FY 2003 civil costs of automation are displayed for two main categories: acquisition of hardware and associated commercial off-the-shelf software (COTS) and automated information systems (AIS). In addition, an estimate of FY 2003 civil cost of automation personnel is provided below.

Table A shows projected hardware and associated COTS acquisition costs for FY 2003, some of which are capitalized through the Revolving Fund's Plant Replacement and Improvement Program (PRIP). Civil Works requirements for automation hardware also include items such as engineering work stations, file servers, personal computers, printers and other peripheral equipment costing less than $25,000, or items which will be utilized only in support of a single project, including research and development activities at Corps laboratories, and will be acquired with project funds. Such items are not eligible for PRIP financing since they do not meet the threshold for capitalization, or do not support more than one project. Funding for these items will be either through the General Expenses appropriation, district or laboratory overhead accounts, or specific Civil Works programs or projects.

Table B shows estimated FY 2003 Civil Works funding requirements to support automated information systems (AIS). An automated information system is any application software using COTS or custom-developed code to satisfy the information needs of a business process or program, and includes hardware and communications specifically required for using the software. These have been grouped by whether they are in use Corps-wide or were developed to meet local requirements.

The estimate of FY 2003 direct labor costs for the professional Computer Specialists, Computer Scientists, Programmers, Systems Analysts, Programmer Analysts, Information Management Planners, Telecommunications Specialists, and the Computer Technicians and Assistants which are charged to Civil Works projects and appropriations, is $29,020,680. Not included in the estimate are the costs of visual information specialists, photographers, print specialists, librarians, mail clerks, or the budget analysts and other support personnel who comprise a typical Corps information management office.

Source of data for tables A and B is the Information Technology Investment Portfolio System (ITIPS). The estimate of civil cost of automation personnel is from the Army Civilian Personnel Employee Reporting System (ACPERS).

TABLE A
HARDWARE ACQUISITION

Item	PRIP Funded	FY 2003 Civil Works Requirement
Corps of Engineers Enterprise Infrastructure System	X	$3,030,000
Miscellaneous Information Technology Equipment costing more than $25,000 And capitalized through PRIP		
North Atlantic Division		157,500
Great Lakes and Rivers Division		245,000
South Pacific Division		327,078
Southwestern Division		300,000
Humphreys Engineer Center Support Activity		172,500
	X	$1,202,078
Miscellaneous Information Technology Equipment costing more than $25,000 But not capitalized through PRIP		
Mississippi Valley Division		305,000
North Atlantic Division		591,200
Northwestern Division		872,001
Great Lakes and Rivers Division		3,570,000
Pacific Ocean Division		36,600
South Atlantic Division		90,000
South Pacific Division		236,000
Southwestern Division		968,000
Headquarters		224,840
		$6,893,641
Information Technology Equipment costing less than $25,000		
Automated engineering tools		10,720,741
Infrastructure (includes networks, office automation, communications, etc.)		45,372,971
Information Management Programs (includes library, records management, printing & publications, visual information, etc.)		9,054,982
Standard automated information systems support		4,200,026
		$69,348,720
Total		$80,474,439

TABLE B
AUTOMATED INFORMATION SYSTEMS

	STATUS	FY 2003 Civil Works Requirement
CORPS-WIDE SYSTEMS		
Numerical Models	Maintenance	$2,090,000
Corps of Engineers Lessons-Learned System	New	140,000
Design Review and Checking System	New	181,900
Frequency Management System	Maintenance	34,881
Architect-Engineer/Construction Contract Appraisal System	Maintenance	315,644
Computer Aided Cost Engineering System	Maintenance	628,000
Corps Water Management System	New	2,638,000
Equipment Manual	Maintenance	145,000
Bridge Inventory System	Maintenance	55,000
GIS Viewer for Corporate Datasets	Maintenance	205,000
PDSC-TMIS	New	169,788
Facilities and Equipment Management System	New	5,760,992
Program/Project Management Information System	Maintenance	1,868,975
PROMIS Phase II	New	8,977,901
Operations & Maintenance Business Information Link PLUS	New	3,714,284
Programs and Projects Delivery System	Maintenance	136,400
Information Technology Investment Portfolio System	Maintenance	75,250
Knowledge Management - Horizontal Enterprise Portal	New	215,860
CW Operations and Maintenance Budget System	Maintenance	300,000
PAVEMENT- Computer Assisted Structural Engineering	Maintenance	40,000
Resident Management System	Maintenance	800,000
Project and Resource Information System For Managers	Maintenance	323,000
ENGLink Interactive	New	1,820,000
Registry of Skills	New	60,000
CE Automated Legal System	Maintenance	179,400
Vehicle Information Management System	Maintenance	181,475
Automated Personal Property Management System	Maintenance	404,600
Real Estate Management Information System	Maintenance	1,195,400
CE Financial Management System	Maintenance	9,328,200
Force Configuration	Maintenance	37,000
CE Enterprise Management Information System	Maintenance	321,000
Corps of Engineers Manpower Requirements System	New	337,500
Integrated Manning Document	Maintenance	12,979
Small Business Information System	Maintenance	43,500

TABLE B
AUTOMATED INFORMATION SYSTEMS

	STATUS	FY 2003 Civil Works Requirement
CORPS-WIDE SYSTEMS (Continued)		
Accident Experience and Analysis System	Maintenance	33,999
Real Estate Corporate Information System	New	162,225
Web Enabled ACASS/CCASS	New	67,500
Business Information Integration Technical Data Encyclopedia	New	208,000
NSDI Clearinghouse Website	Maintenance	60,000
CW Web Support	Maintenance	119,000
E-Mail Mandatory Center of Expertise	Maintenance	1,269,367
Information Architecture 2000+	New	376,300
Internet Center of Expertise	Maintenance	386,875
Video Teleconferencing Program	Maintenance	100,621
CORPS LOCAL SYSTEMS (excludes local systems costing less that $10,000)		
Mississippi Valley Division		
Automated Training Management Program	New	60,000
PROMIS	Maintenance	45,000
Data to Desktop (D2D)	New	190,900
North Atlantic Division		
Production Resource Operating Support System	Maintenance	75,300
Emergency Operations Center	Maintenance	50,185
Electronic Document Management System	Maintenance	100,000
Northwestern Division		
GDACS, Dam Systems	New	886,000
Computerized Maintenance Management System	Maintenance	20,000
Power Plant Control System	Maintenance	405,625
Great Lakes and Ohio River Division		
Interactive Video Systems for Field Sites	Maintenance	37,000
Pacific Ocean Division		
Electronic Time Sheet	Maintenance	20,000
Regulatory Imaging System - Permit Support	Maintenance	50,000

TABLE B
AUTOMATED INFORMATION SYSTEMS

	STATUS	FY 2003 Civil Works Requirement
South Atlantic Division		
Information Management Procedure For Automation Cost Tracking	Maintenance	15,000
Regulatory Analysis and Management System	Maintenance	25,000
South Pacific Division		
Emergency Operations Regional Management System	New	21,000
Water Control Management	Maintenance	551,578
Southwestern Division		
PM Virtual Notebook	Maintenance	25,000
Budget Worksheet	Maintenance	12,000
Engineer Research and Development Center		
Financial Admin Management Information System	Maintenance	38,000
Lab Information Management System	Maintenance	80,200
Flat Rate Burden System	Maintenance	10,500
Lab Demo Pay Pool System	Maintenance	53,750
Technology Information Products Services	New	150,000
Data Acquisition & Control	Maintenance	190,000
Coastal-Hydraulics R&D Support	Maintenance	475,000
Environmental R&D Support	Maintenance	705,000
Geotechnical R&D Support	Maintenance	210,000
Structures R&D Support	Maintenance	225,000
Information Technology R&D Support	Maintenance	375,000
Special Projects - Vicksburg	Maintenance	125,000
Special Projects – Hanover	Maintenance	125,000
Special Projects - Champaign	Maintenance	125,000
Special Projects - Alexandria	Maintenance	125,000
Marine Design Center		
Crane Barge Program	Maintenance	25,000
Marine Design Indexing Program	Maintenance	12,000
Total		$51,159,854

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 2003

Summary of Budget Request for Inland Waterway Trust Fund Projects

Project Name	Construction, General Appropriation $	Inland Waterways Trust Fund $	Total $
Construction			
Inner Harbor Canal Lock, LA	4,500,000	4,500,000	9,000,000
Kentucky Lock and Dam, Tennessee River, KY	13,700,000	13,700,000	27,400,000
Locks & Dams 2, 3 & 4, Monoghela River, PA	18,009,000	18,008,000	36,017,000
Marmet Lock, Kanawha, River, WV	5,489,000	5,489,000	10,978,000
McAlpine Locks & Dams, IN & KY	3,096,000	3,096,000	6,192,000
Olmsted Locks and Dam, IL & KY	38,500,000	38,500,000	77,000,000
Robert C. Byrd Locks and Dam, WV & OH	750,000	750,000	1,500,000
(Locks)	(130,000)	(130,000)	(260,000)
(Dam Rehabilitation)	(620,000)	(620,000)	(1,240,000)
Winfield Locks and Dam, WV	100,000	100,000	200,000
Total - Construction	84,144,000	84,143,000	168,287,000

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 2003

Summary of Budget Request for Inland Waterway Trust Fund Projects

Project Name	Construction, General Appropriation $	Inland Waterways Trust Fund $	Total $
Rehabilitation			
Lock and Dam 3, Mississippi River, MN (Rehab)	1,500,000	1,500,000	3,000,000
Lock and Dam 11, Mississippi River, IA (Rehab)	683,000	683,000	1,366,000
Lock and Dam 12, Mississippi River, IA (Rehab)	2,702,000	2,702,000	5,404,000
Lock and Dam 24, Mississippi River, IL & MO (Rehab)	5,000,000	5,000,000	10,000,000
London Locks and Dam, Kanawha River, WV (Rehab)	5,967,000	5,967,000	11,934,000
Total - Rehabilitation	15,852,000	15,852,000	31,704,000
Gross Total - Construction and Rehabilitation	99,996,000	99,995,000	199,991,000
Reduction for Anticipated Savings and Slippage	(15,996,000)	(15,995,000)	(31,991,000)
Net Total	84,000,000	84,000,000	168,000,000

Justification of Estimates for Civil Works Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 2003

SUMMARY OF APPROPRIATIONS

APPROPRIATION TITLE	FY 2002 Appropriation 1/	FY 2003 Request	Increase (Decrease)
General Investigations	$ 130,000,000	$ 108,000,000	$ (22,000,000)
Construction, General	1,324,000,000	1,440,000,000	116,000,000
Operation and Maintenance, General	1,745,000,000	1,979,000,000	234,000,000
Flood Control Mississippi River and Tributaries	280,000,000	288,000,000	8,000,000
Regulatory Program	128,000,000	151,000,000	23,000,000
Flood Control and Coastal Emergencies	0	22,000,000	22,000,000
General Expenses	153,000,000	161,000,000	8,000,000
Revolving Fund	0	0	0
FUSRAP	140,000,000	141,000,000	1,000,000
Permanent Appropriations	15,992,000	15,502,000	(490,000)
Total	$ 3,915,992,000	$ 4,305,502,000	$ 389,510,000

1/Energy and Water Development Appropriations Act, 2002, P.L. 107-66.